The Military Enhances Security Through Energy and Water Efficiency

Presentation to the Texas Legislature
June 12, 2012

Texas Army National Guard
Construction and Facilities Management Office
COL Tracy R. Norris
Director
Mission
Provide the Governor and the President with ready and trained forces in support of the citizens of Texas and state and federal civil/military authorities at home and abroad.

Vision
Become a fully deployable, diverse and professional Total Force capable of Full Spectrum Operations and responsive to State and Nation.

State
• Defense Support to Civil Authorities (DSCA)
  – Homeland Defense
  – Homeland Security
    • Border/Shores/Highways
    • Operation Border Star—LEA
  – Rabies Eradication—DSHS
• Humanitarian Assistance/Disaster Relief (HA/DR)
  – Hurricanes, Floods, Fires, Ice Storms
• Medical Support to Border Area-Operation Lone Star
• Assisting At-Risk Youth Programs
  – ChalleNGe/Star Base
• CDAE (Counter Drug Aviation Element)

Federal
• Homeland Defense
• SWB Support
• Augment Combatant Commands
  – CENTCOM
  – PACOM
  – EUCOM
  – NORTHCOM
  – SOUTHCOM
  – AFRICOM
• Peace Prairie (Singapore)
• Czech Republic Partnership
• Chile Partnership
• NORTHCOM-SEDENA Support.

Title 32 USC

Title 10 USC
• COL Tracy Norris, Director

• The mission of the Texas Construction and Facilities Management Office (CFMO) is to provide for the construction, repairs, and maintenance of all TXARNG facilities and installations.

• CFMO is the principal advisor to the Texas Adjutant General regarding all real property, facilities, construction, & environmental management programs.
Things To Keep In Mind

• We are **YOUR** domestic military force
  – Deployed domestically & internationally to protect our nation & state.

• Our infrastructure is widely dispersed throughout the state
  – Our troops are in 254 counties
  – Army, Air, State Guard
  – Most are state facilities used for domestic response

• We must get state funding to maintain, repair, & construct our facilities to keep us secure & fulfill our mission.
TXMF Facilities - Statewide

Texas Military Forces
Main Assets
and
Geographic Distribution
With Texas Disaster Districts

As of March 2012

- 62 State Readiness Centers (Armories)
- 34 Maintenance Facilities
- 4 Army Aviation Support Facilities

100 total

- 18 Armed Forces Reserve Centers (AFRC)
  (4 TXATRC Hosts, 14 LIGAR Hosts)
- 4 Training Centers
- 10 Air Wings and Geographically Separated Units

Texas NATIONAL GUARD
Domestic Missions 2003-11

Defense Support to Civil Authorities:
Over 283,000 Mandays since 2003.
Necessary Resources For Security

**Air**
- air-shed
- air space

**Energy**
- electricity
- natural gas
- fuel...

**Water**
- watershed
- aquifer
- infrastructure
  - potable
  - wastewater

**Land**
- training areas
- “buffer”
- habitat

**Waste**
- solid (municipal)
- hazardous
"Energy Security -- Having ensured access to reliable supplies of energy and the ability to protect and deliver sufficient energy to meet operational needs."

-2010 Quadrennial Defense Review
A resilient energy system may include:
- ACTIVE security: Surveillance, guards
- PASSIVE security: Duplication, redundancy, diversity

Focus on Infrastructure security and cyber security related issues rather than supply, demand, geopolitical issues, etc.
Aging infrastructure & facilities affects our ability to:

– Recruit, retain, & train our soldiers
– Administer & maintain our assets
– Perform our assigned missions
– Support deployments & assist their families
– Serve Texans in emergencies – hurricanes, floods, wildfires
• Maintains approx. 5.5 million sq. ft. at facilities that are owned, leased, or licensed by the State in support of the TXARNG.
  – The state of Texas is responsible for approximately 50% (depending on function) of all utility and energy costs.

• Nearly half of all readiness centers were constructed over 50 years ago.
  – In need of substantial repairs, rehabilitation, & maintenance.
  – Costs of operations, including Energy and Water consumption, are exacerbated by age and lack of sustainment.

• All renovation and energy/water efficiency upgrade efforts must have matching funding from the Texas Legislature.
  – Lack of State participation results in the loss of Federal $$$ and the inability to ensure energy and water security.
Example of a Typical Facility

Hondo Readiness Center (constructed in 1956). Designed life expectancy of 50 years.
Design Initiatives

• LEED
  – All Texas Army National Guard facilities are required to be designed to a minimum of LEED Silver.
    • 14 USAR led Joint Military Forces Facilities
    • 3 TXARNG led Joint Military Forces Facilities
    • 2 MILCON TXARNG led facilities

• Net-Zero
  – The net energy consumption of the facility should be neutral over the course of a year.
  – All federal facilities designed after 2020 are required to be designed to operate at a Net-Zero level of energy consumption.
  – Water use reduction, and waste management also have required milestones that relate to the energy security of these facilities
Armed Forces Reserve Center
San Marcos

Base realignment and consolidation to reduce aging facilities – LEED Silver
# Energy & Water Security Strategies

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<tr>
<th><strong>Lighting</strong></th>
<th><strong>Solar Photo Voltaic</strong></th>
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<tbody>
<tr>
<td>• Per Energy Policy Act 2005: Manufacture of T12 Lighting should be discontinued June 2012.</td>
<td>• 8 Total Solar Generation Arrays throughout the state.</td>
</tr>
<tr>
<td>• 71 T12 Lighting Upgrades Planned for a total Energy savings of approximately $1,000,000 in annual electricity savings.</td>
<td>• Total solar electrical capacity of 420 KW and 1,200,000 KWh of electricity.</td>
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<th><strong>Metering</strong></th>
<th><strong>Smart Buildings</strong></th>
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<td>• Allows for identification of energy waste and possible maintenance issues.</td>
<td>• Building Control systems for HVAC, Lighting, and other building systems.</td>
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<td>• Army Corp of Engineers is currently installing meters on 44 facilities.</td>
<td>• Reducing energy consumption by 30% through proper management of facility systems.</td>
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Lighting Efficiency Upgrades

• Replaced 52 - 1000 watt metal halide fixtures with 78 - 207 watt LED fixtures
  One of the first high bay in the U.S. to be done.
• 69% reduction in cost & usage (lighting only). Austin Bergstrom Hanger.
Lighting Security & Efficiency Project

- Equipment Maintenance Canopy - Illuminated exclusively with LEDs for task and security lighting. Laredo
Energy Security & Efficiency Upgrades

- 71 KW Solar Array. Produces 97,000 KWh per year.
- $10,700 savings per year. Ellington Field Readiness Center in Houston, Texas
Energy Security & Efficiency Upgrades

Installed 150 KW Carport Solar Structures.
Camp Mabry Bldg 8

Saved the State over $22,000 per year
## Energy & Water Security Strategies

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<tr>
<th>Commissioning HVAC</th>
<th>Utility Contract Negotiation</th>
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| • Optimization of Air Conditioning and other building systems ensures that they are operating efficiently.  
• Reduce Energy  
• Improve occupant comfort  
• Prevent costly maintenance issues | • Peak Demand Interruption: lowers cost of electricity and reduces stress on the public electrical grid (ERCOT).  
• Load Leveling: shifting electricity usage to off peak times to save money and reduce the demand stresses on the public grid (ERCOT). |

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<th>Micro-Grid</th>
<th>Education &amp; Awareness</th>
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| • Off-grid generation of power is essential for range and training activities.  
• More cost effective than extending permanent utility infrastructure for training purposes. | • Reduction of nearly 30% at Army facilities is the goal through awareness and behavioral changes.  
• Education regarding optimal energy usage for the Texas Military Forces will bring many more participants into the mission. |
Lighting Efficiency Upgrades

- LED parking lot lights. Total 416 watts for these lights.
- 100% savings per year since this project is completely off of the grid.
- Irving Readiness Center

100% savings to the State
Because
100% off the energy grid
Reduction in TXMF Utilities Usage

Potable Water Use.
Gallon /sq ft

- FY2007: 25
- FY2011: 10

Electricity Energy Use.
1000 BTU/sq ft

- FY2003: 35
- FY2011: 25
CFMO Sustainability Initiatives

• Partner with public & private entities
• Partnering conference – 3rd year, Houston
• Partnerships include:
  – Joint land-use studies with cities
  – Compatible-use buffer zones
  – Natural resource land management projects
  – Water conservation projects
  – Energy security projects
CFMO 2012 and Beyond

- Joint state and federal agency projects
- Statewide Energy Master Plan collaborations
- Utility cost efficiencies using innovative technology
- Optimizing building energy system management
- Long-term preventative maintenance strategy
State Support

- Maintenance & repairs
- Readiness Center design & construction
TXMF Facilities - Statewide
Thank You

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