



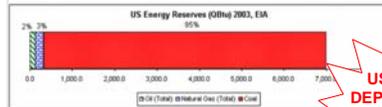
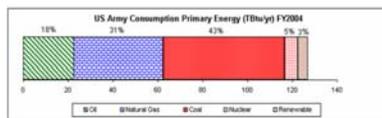
ARMY Energy Security Considerations

Don Juhasz, PE, CEM
 HQDA, OACSIM, DAIM-FDF
 Telephone: (703)-601-0374
 E-mail: don.juhasz@hqda.army.mil

FUEL CELL OPPORTUNITIES
 26 April 2007

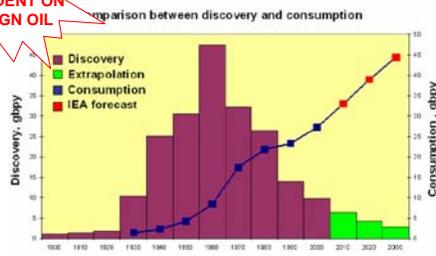
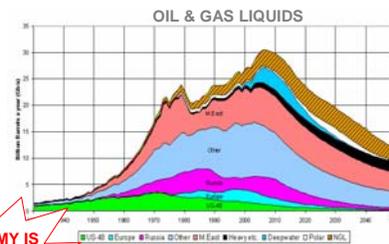


World Energy Situation



- Army Energy**
- 38% Rise in NTV Fuel Use
 - 35% of DoD utilities
 - 21% of Fed government
 - 11% of installations' budget

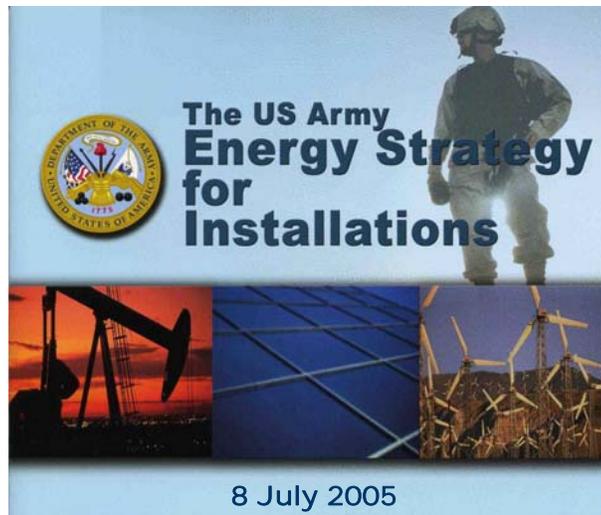
US ARMY IS DEPENDENT ON FOREIGN OIL





Challenges To Managing The Future

- World population growing: 6.5 B in 2006, 2030 estimate 7.9 B
- World oil demand up since 2000: Up 7 million barrels per day (mbd), 2 mbd increase in China, 1.4 mbd increase in India.
- Hurricanes Katrina and Rita shut down 27% of US oil refining capacity, production is still off 400,000 barrels per day.
- US oil imports increasing: 33% in 1973, 58% in 2006, current rate will require 70% by 2020.
- In 1973 North America consumed twice as much oil as Asia. In 2005 Asian consumption exceeded that in North America
- US oil consumption up: 20.7 mbd in 2004, 21.1 mbd in 2006.





Army Energy and Water Campaign Plan for Installations

- ✓ *Eliminate energy waste in existing facilities;*
- ✓ *Increase energy efficiency in renovation and new construction;*
- ✓ *Reduce dependence on fossil fuels;*
- ✓ *Conserve water resources; and*
- ✓ *Improve energy security.*



Army Energy Security Conference – 12-13 December 2006

Energy Security

Army Energy and Water Campaign Plan for Installations

- ✓ *Institute energy security concepts and methodologies in Army installation management operations.*
- ✓ *Implement energy security plans and continuously improve the Army Energy Security Program.*
- ✓ *Use current and projected energy sources with greatest potential for availability and economy.*



Energy Security

Army Energy and Water Campaign Plan for Installations

✓ ***Institute energy security concepts and methodologies in Army installation management operations.***

- Develop energy security survey methodology
- ***Develop standards for utility system and energy supply reliability***
- ***Develop facilities prioritization methodology***
- Update installation energy security plans and water vulnerability assessment and response plans
- ***Develop economic impact methodology for various energy interruption scenarios***



Energy Security

Army Energy and Water Campaign Plan for Installations

✓ ***Implement energy security plans and continuously improve the Army Energy Security Program.***

- Command level review of plans for quality and completeness
- Estimate costs, submit requirements into budget, and execute energy security projects
- ***Incorporate energy security considerations into the design process***
- Conduct annual review of energy security program
- Incorporate energy security rating into Installation Status Report



Energy Security

Army Energy and Water Campaign Plan for Installations

- ✓ ***Use current and projected energy sources with greatest potential for availability and economy.***
 - ***Participate with other Defense and Federal agencies and academia in forums to assess energy supply trends in order to use technologies using abundant energy sources***
 - ***Partner with DOE and other Services to develop a facility energy source evaluation and execution strategy to allow continuous application of the most secure and reliable energy source at each facility***
 - Establish process to survey, test, evaluate and implement technologies



Where Can Fuels Cells Play A Part?

- Army facilities prioritization that determines need for critical power.
- Additional supplemental power to non-critical facilities during periods of grid disruption.
- Power Quality situations where Fuel Cells can work as Uninterruptible Power Supplies (UPS)
- Prime mover power supply where fuel cell feed stock is economical compared to direct feed into an internal combustion cycle.



Don Juhasz, PE, CEM
Chief Utilities & Energy
ACSIM-FDF

don.juhasz@hqda.army.mil

703-601-0374

<http://www.hqda.army.mil/acsimweb/homepage.shtml>
then energy link