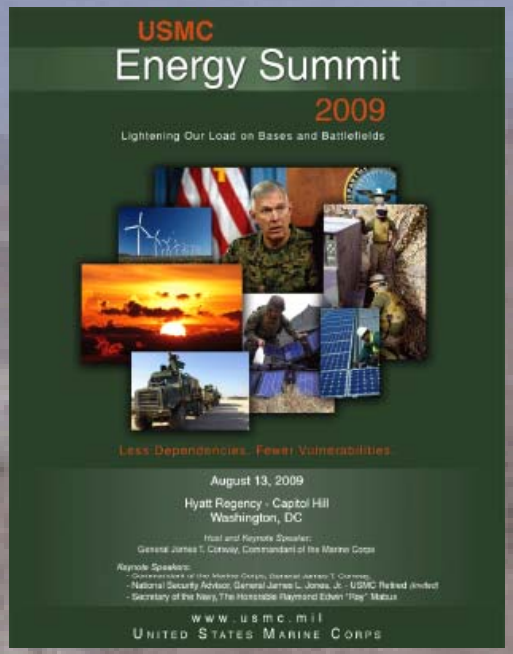
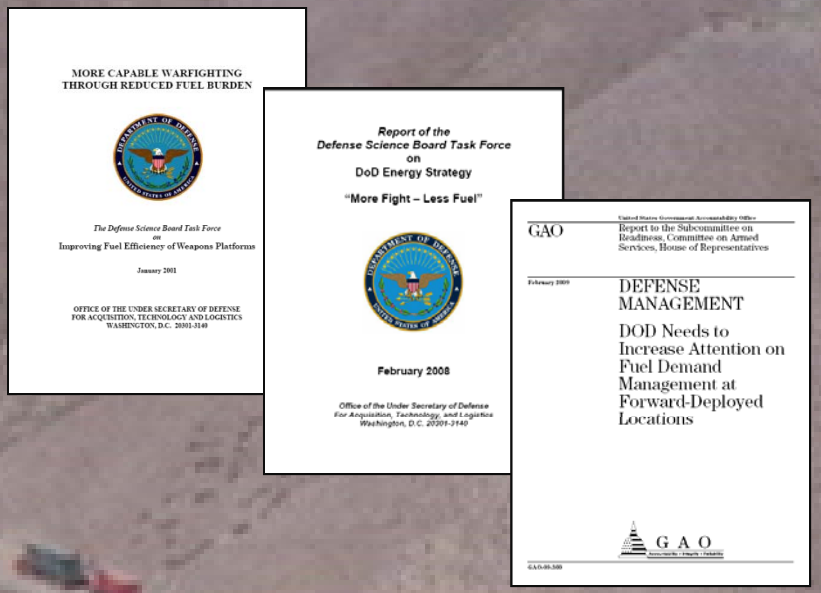
Marine Energy Assessment Team

Afghanistan Assessment Outbrief

26 January 2010

The Problem





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Pentagon: $400 a gallon for gas for troops

Published: Oct. 17, 2009 at 12:04 AM

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WASHINGTON, Oct. 16 (UPI) -- The U.S. Defense Department told a congressional committee paying $400 for a gallon of gas is one reason the cost of the war in Afghanistan is so high.

The Mission

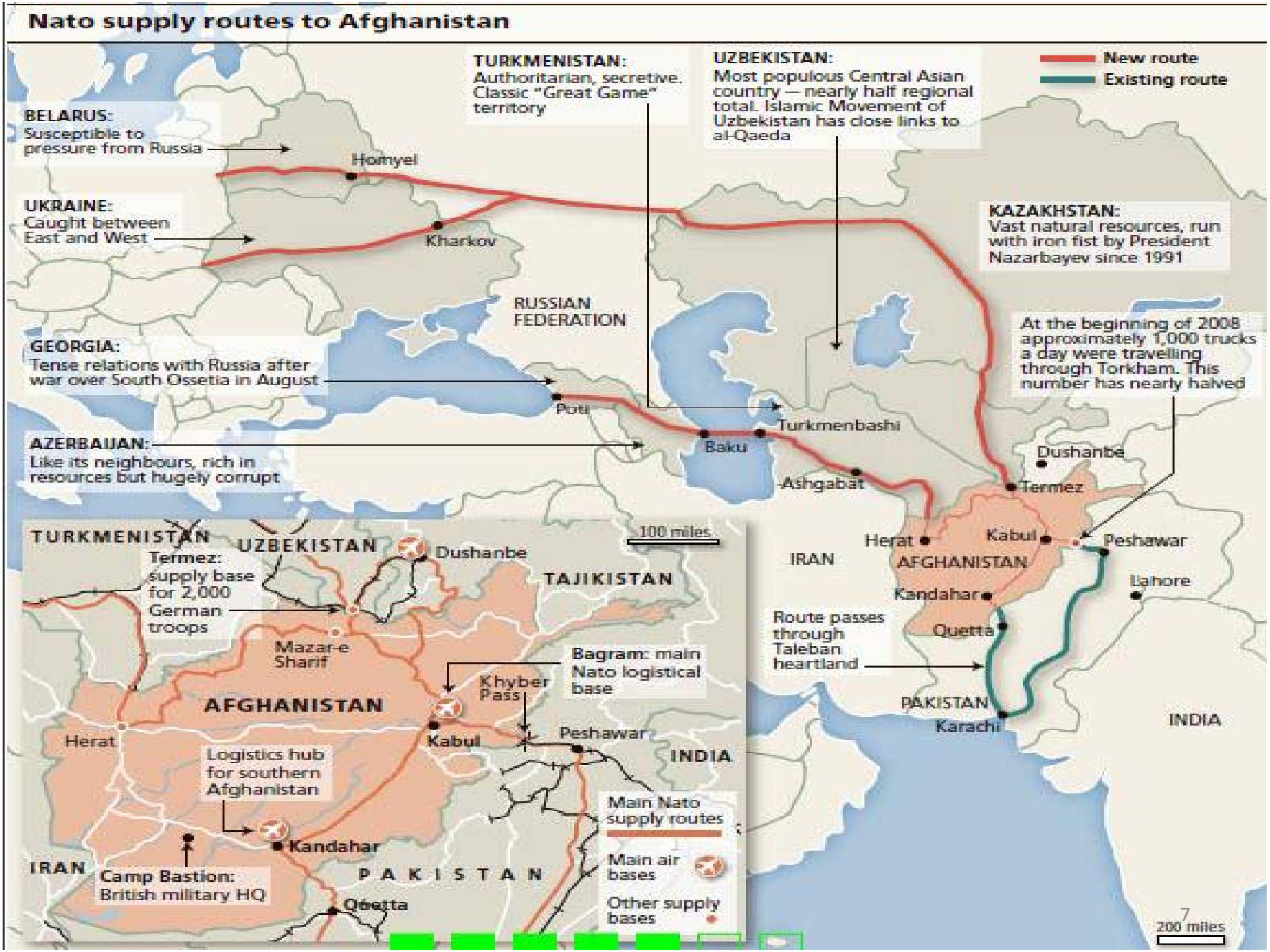
- Assess energy use by deployed Marine Forces
  - Ground truth
    - Consumption
    - Use
    - Cost
- Recommend Actions

Marine Energy Assessment Team

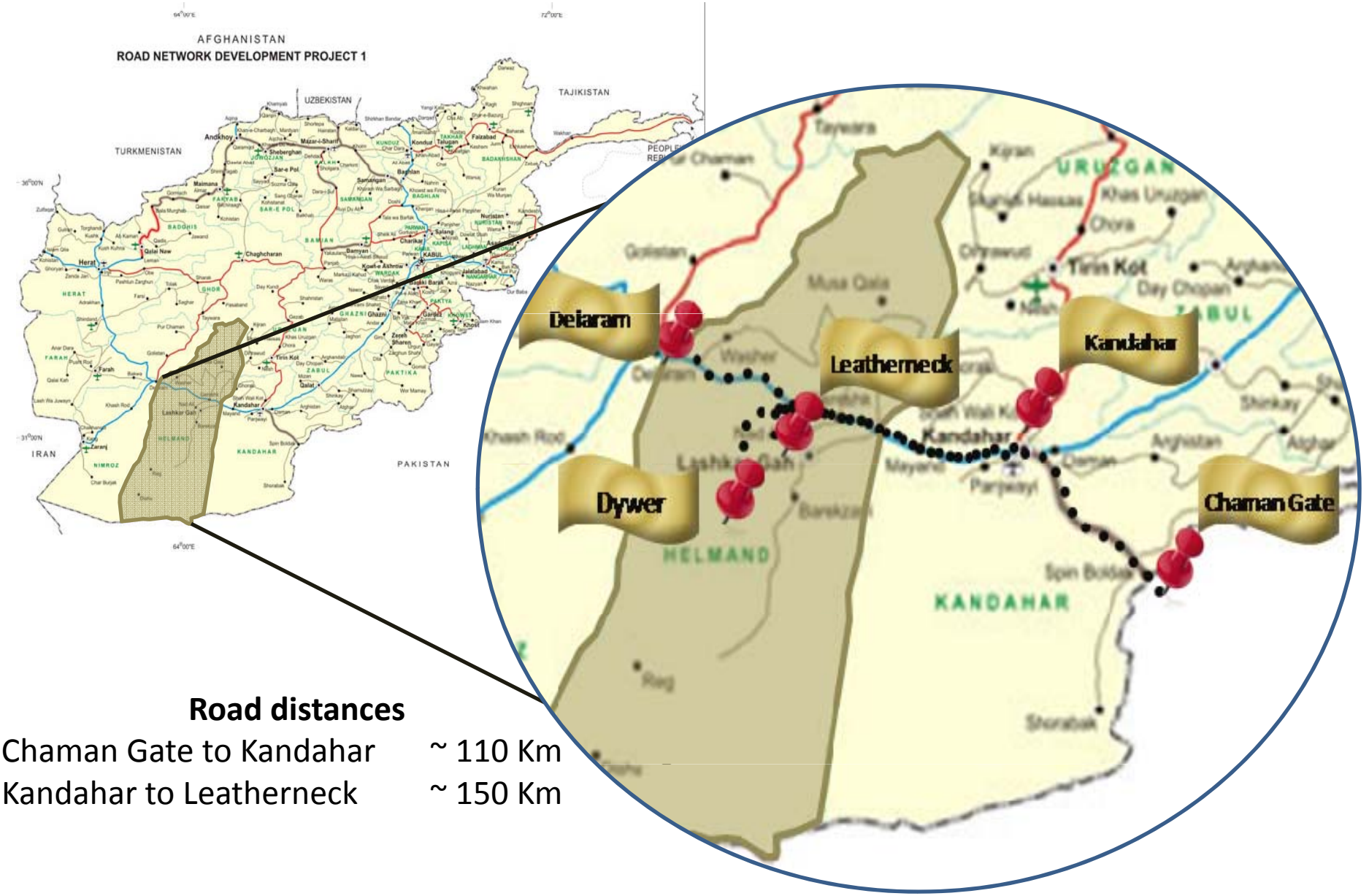
Itinerary

- Tampa (31 Aug – 1 Sep)
  - CENTCOM/MARCENT
- Afghanistan (3 Sep – 15 Sep)
  - Kandahar
  - Leatherneck
  - Dwyer
  - Delhi
  - Payne
  - Hasan Abad
  - Jugroom

Findings


Nato supply routes to Afghanistan
New route
Existing route
BELARUS:
Susceptible to pressure from Russia
UKRAINE:
Caught between East and West
GEORGIA:
Tense relations with Russia after war over South Ossetia in August
AZERBAIJAN:
Like its neighbours, rich in resources but hugely corrupt
TURKMENISTAN:
Authoritarian, secretive. Classic "Great Game" territory
UZBEKISTAN:
Most populous Central Asian country — nearly half regional total. Islamic Movement of Uzbekistan has close links to al-Qaeda
KAZAKHSTAN:
Vast natural resources, run with iron fist by President Nazarbayev since 1991
At the beginning of 2008 approximately 1,000 trucks a day were travelling through Torkham. This number has nearly halved
Route passes through Taleban heartland
Logistics hub for southern Afghanistan
Camp Bastion: British military HQ
Termez: supply base for 2,000 German troops
Bagram: main Nato logistical base
Khyber Pass
Main Nato supply routes
Main air bases
Other supply bases
RUSSIAN FEDERATION
Homyel
Kharkov
Poti
Baku
Turkmenbashi
Ashgabat
Dushanbe
Termez
Herat
Kabul
Peshawar
Lahore
Kandahar
Quetta
Karachi
Mazar-e Sharif
TURKMENISTAN
UZBEKISTAN
TAJIKISTAN
AFGHANISTAN
IRAN
PAKISTAN
INDIA
100 miles
200 miles

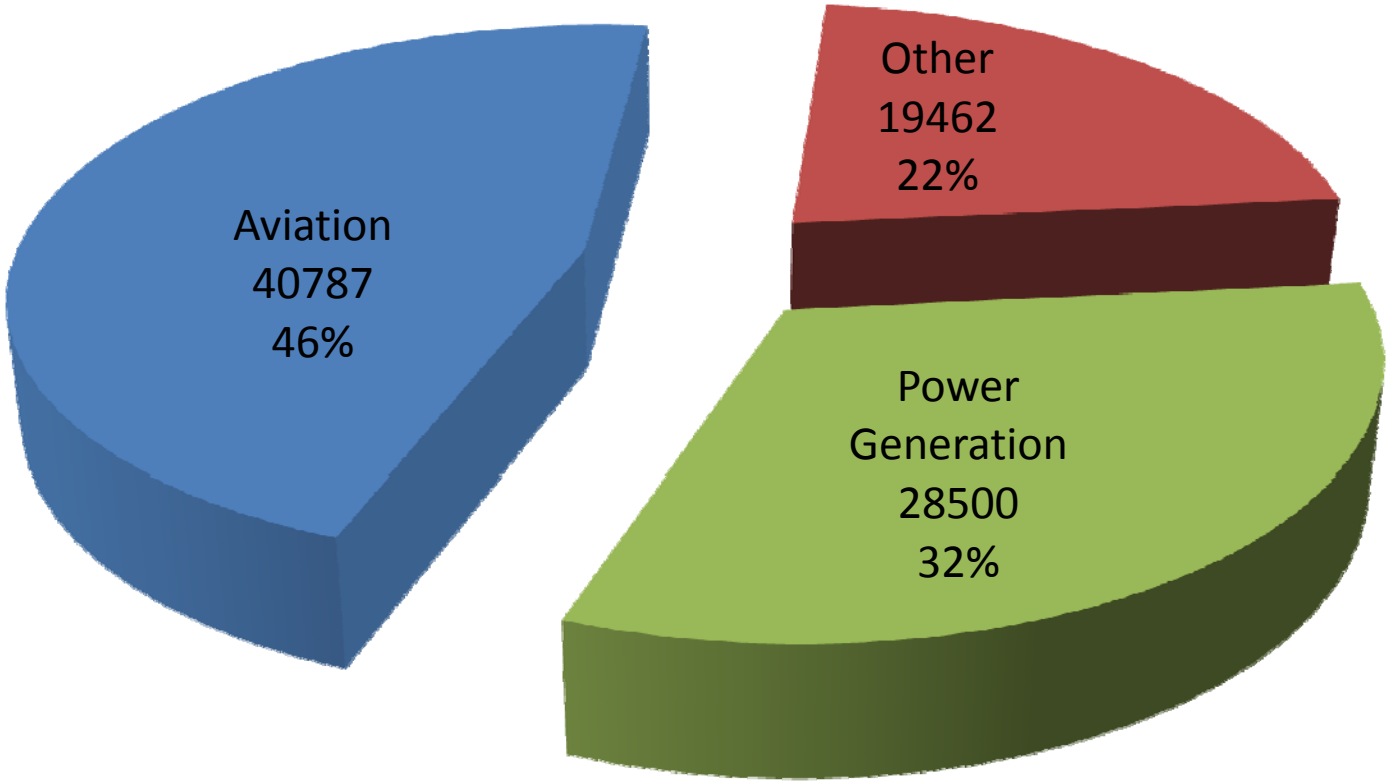
Helmand Theater Logistics



Road distances

Chaman Gate to Kandahar	~ 110 Km
Kandahar to Leatherneck	~ 150 Km

MEB-A Fuel Use

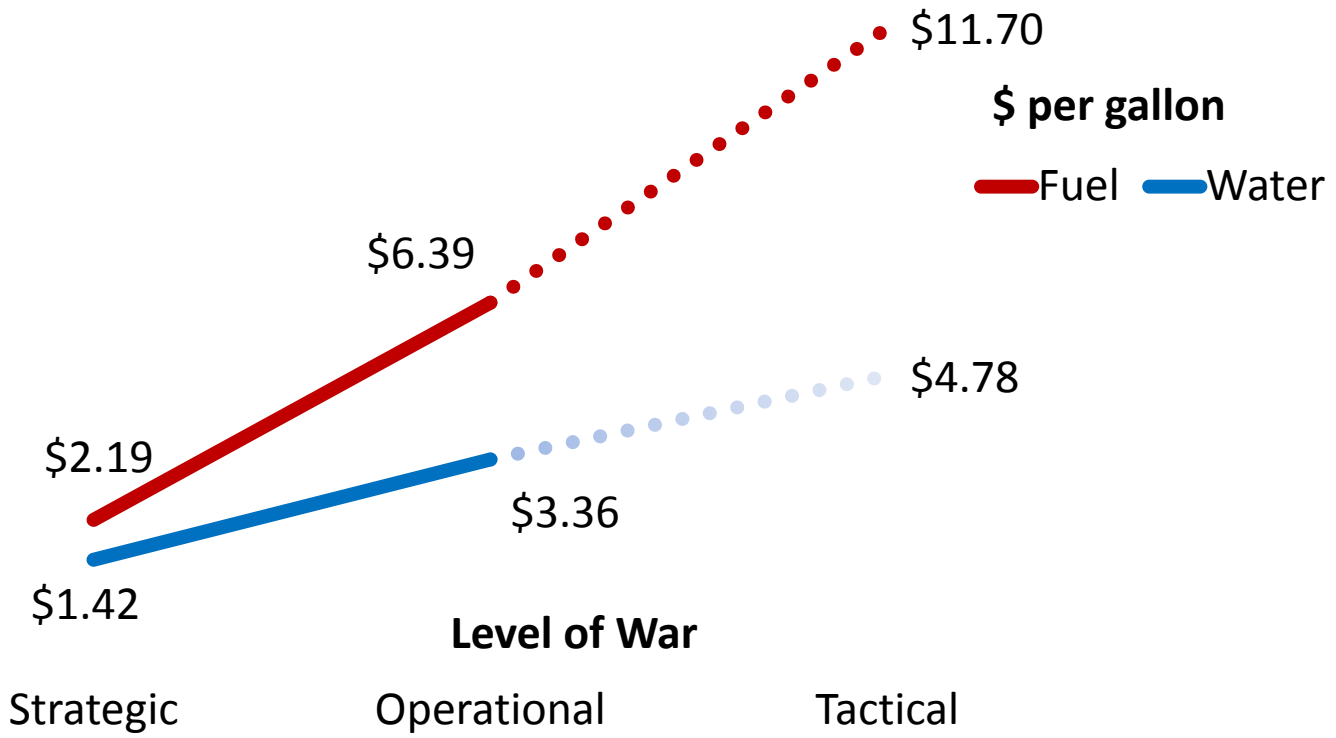


Daily Use 88749 Gallons

Source MEB-A Bulk Fuels Officer for August 2009

Cost

Grows Approaching the Tactical Edge



Valid for August 2009
Data/Calculation Sources:
Fuel: Strategic Level-DESC, Operational Level 10th BSB, Tactical Edge – PA&E Calculation (ADP)
Water: Strategic Level- 10th BSB, Operational level 10th BSB, Tactical Edge – PA&E Calculation (ADP)

Risk

Grows Approaching the Tactical Edge

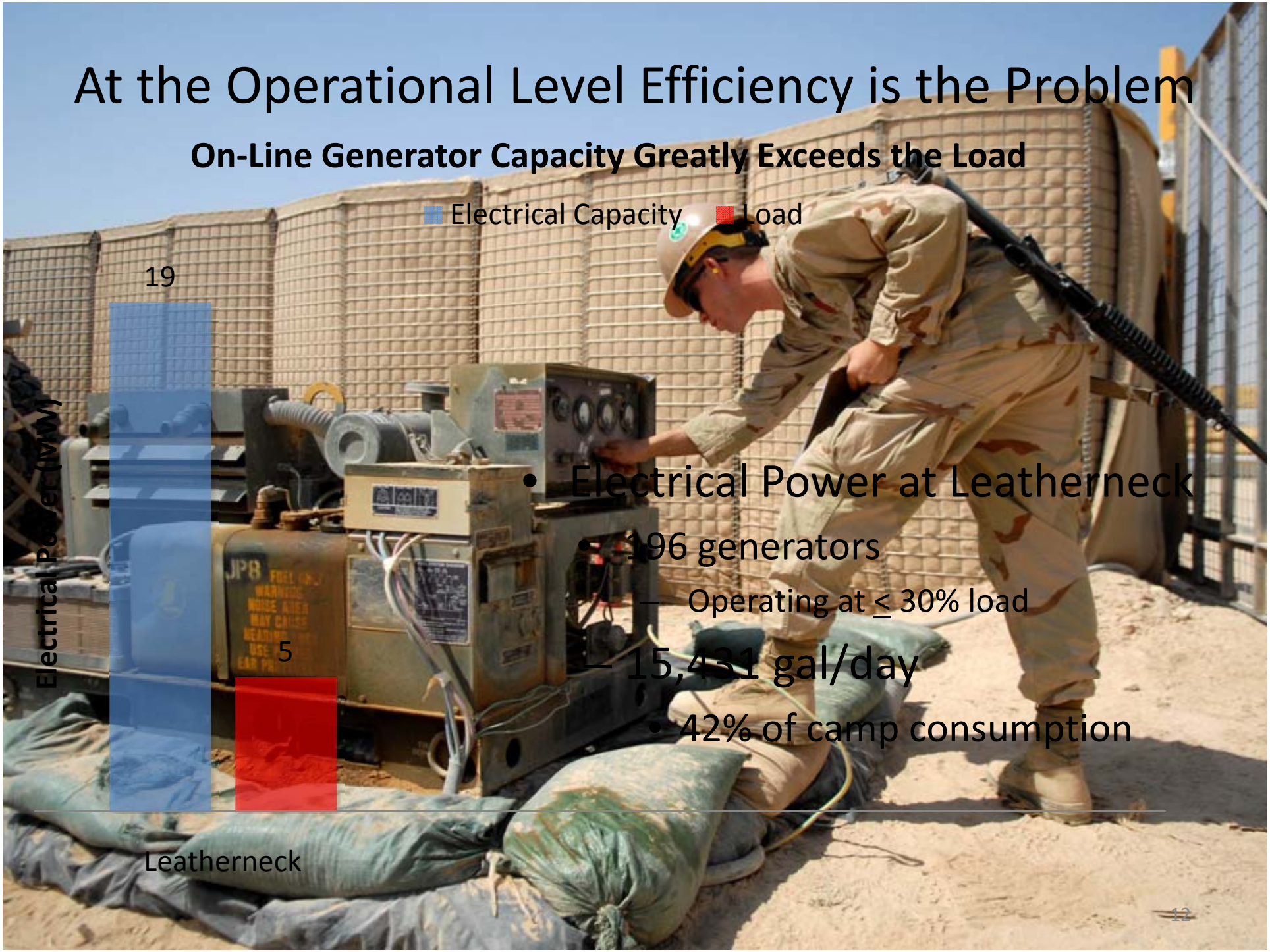
Level of War

Strategic/Pakistan | Operational/RC South | Tactical/MEB-A AOR

Data Sources: CIDNE and Compass ISS Threat Assessment
Period August 24 – August 30, 2009

At the Operational Level Efficiency is the Problem

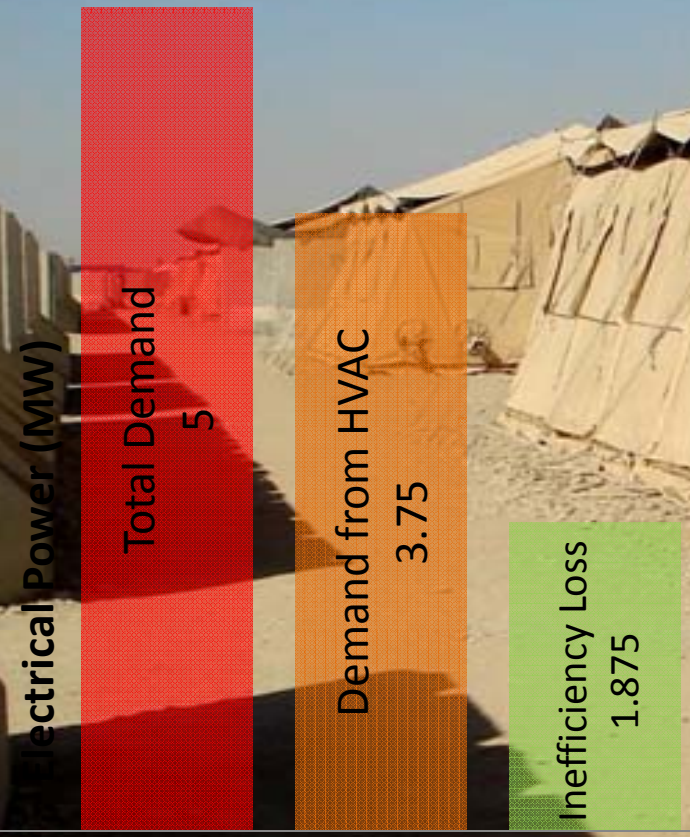
On-Line Generator Capacity Greatly Exceeds the Load



- Electrical Power at Leatherneck
  - 196 generators
    - Operating at < 30% load
  - 15,431 gal/day
    - 42% of camp consumption

At the Operational Level Efficiency is the Problem

Structure Energy Efficiency is Poor



HVAC is 75% of electrical demand

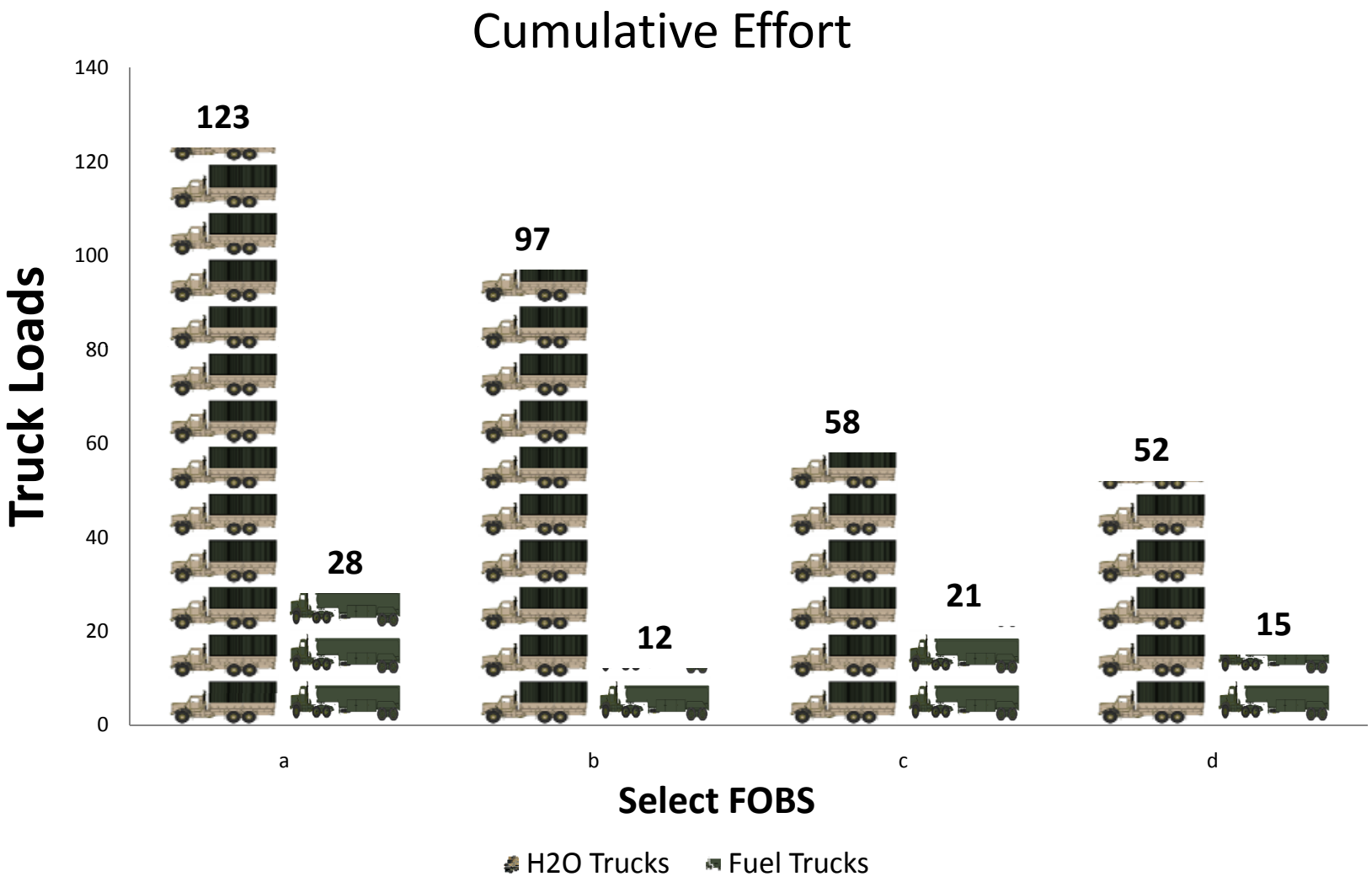
≥50% is lost by inefficient structures

- Tents
- SWA Huts

Leatherneck

At the Tactical Edge Power Demand is Small

At the Tactical Edge Water is the Problem

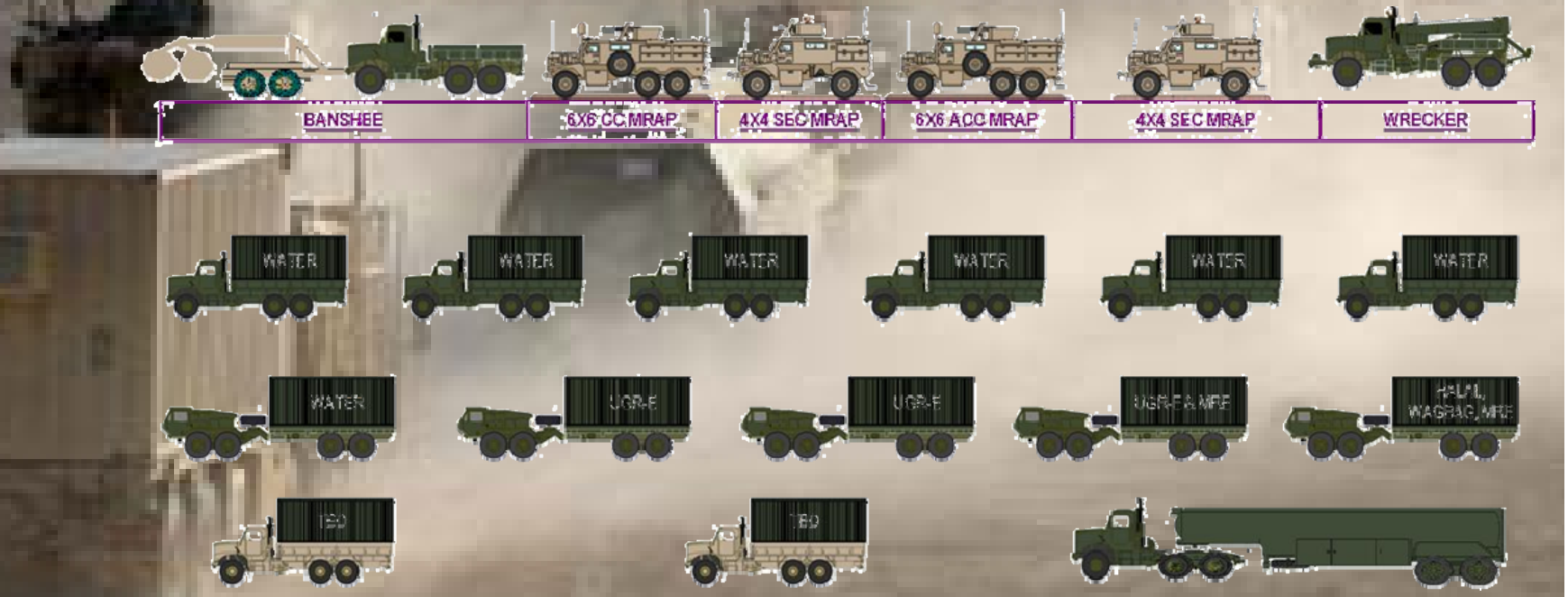


Data Source CLB-8 period June 13 – September 11 2009

At the Tactical Edge Water is the Problem

Weekly Demand for a Battalion

Combat Logistics Patrol (CLP) X 2



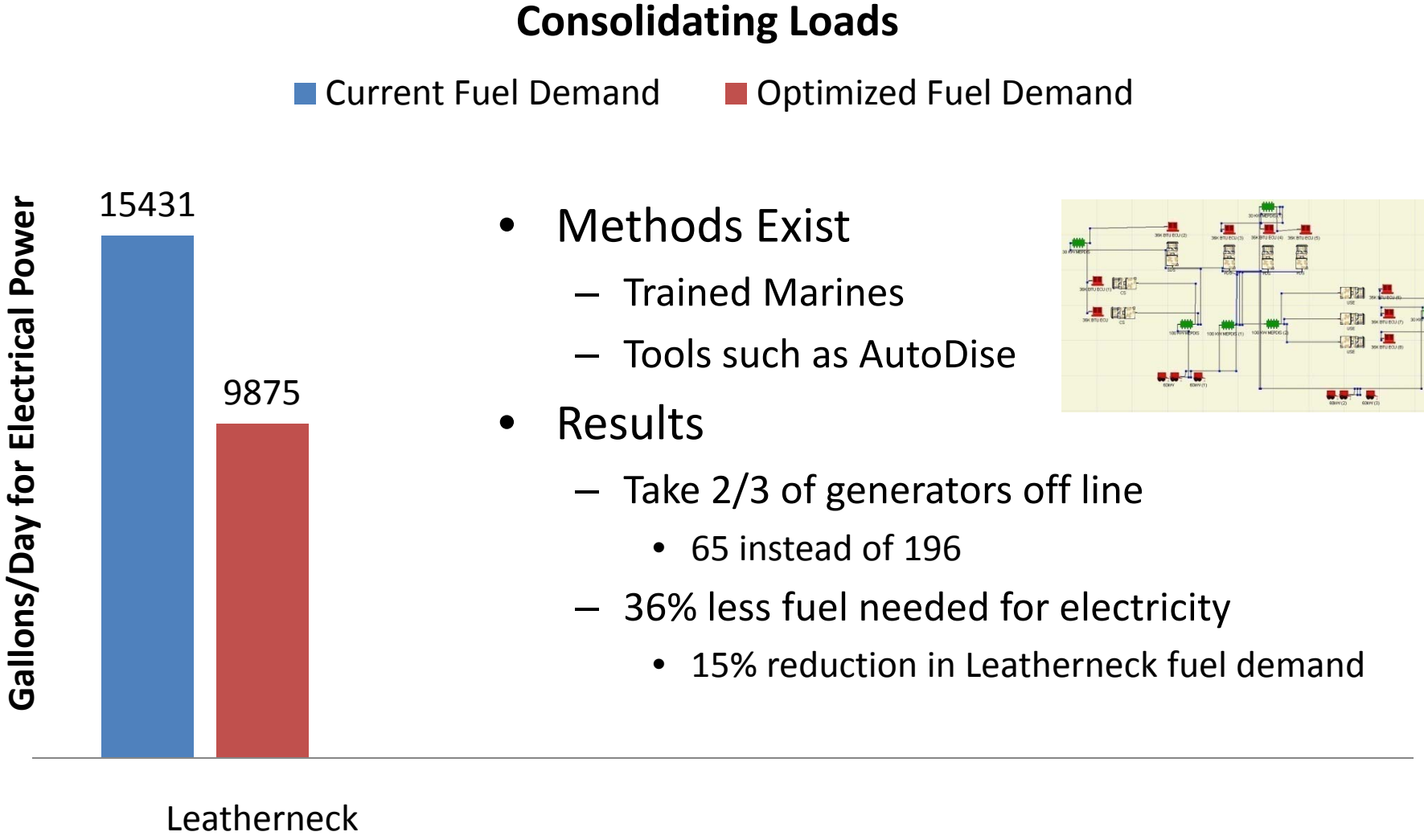
Recommendations

<1 YEAR | 1-3 YEARS | > 3 YEARS

Near Term Recommendations

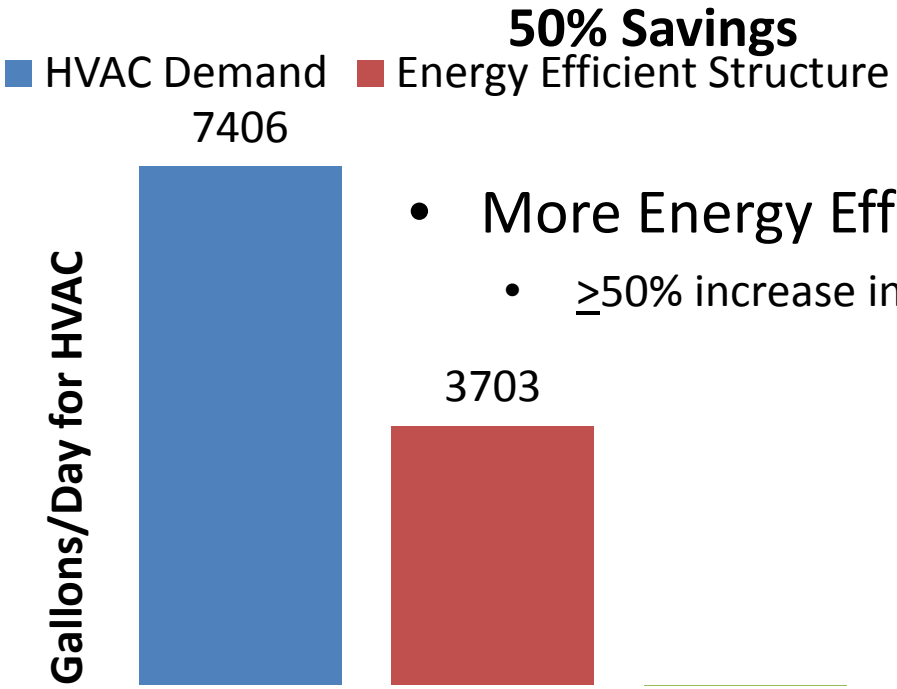
- Low Hanging Fruit
- Can be started now
- Immediate benefit
  - Reduced risk to life
  - Reduced financial cost
- Don’t require Science Experiments

Optimize Spot Power Generation



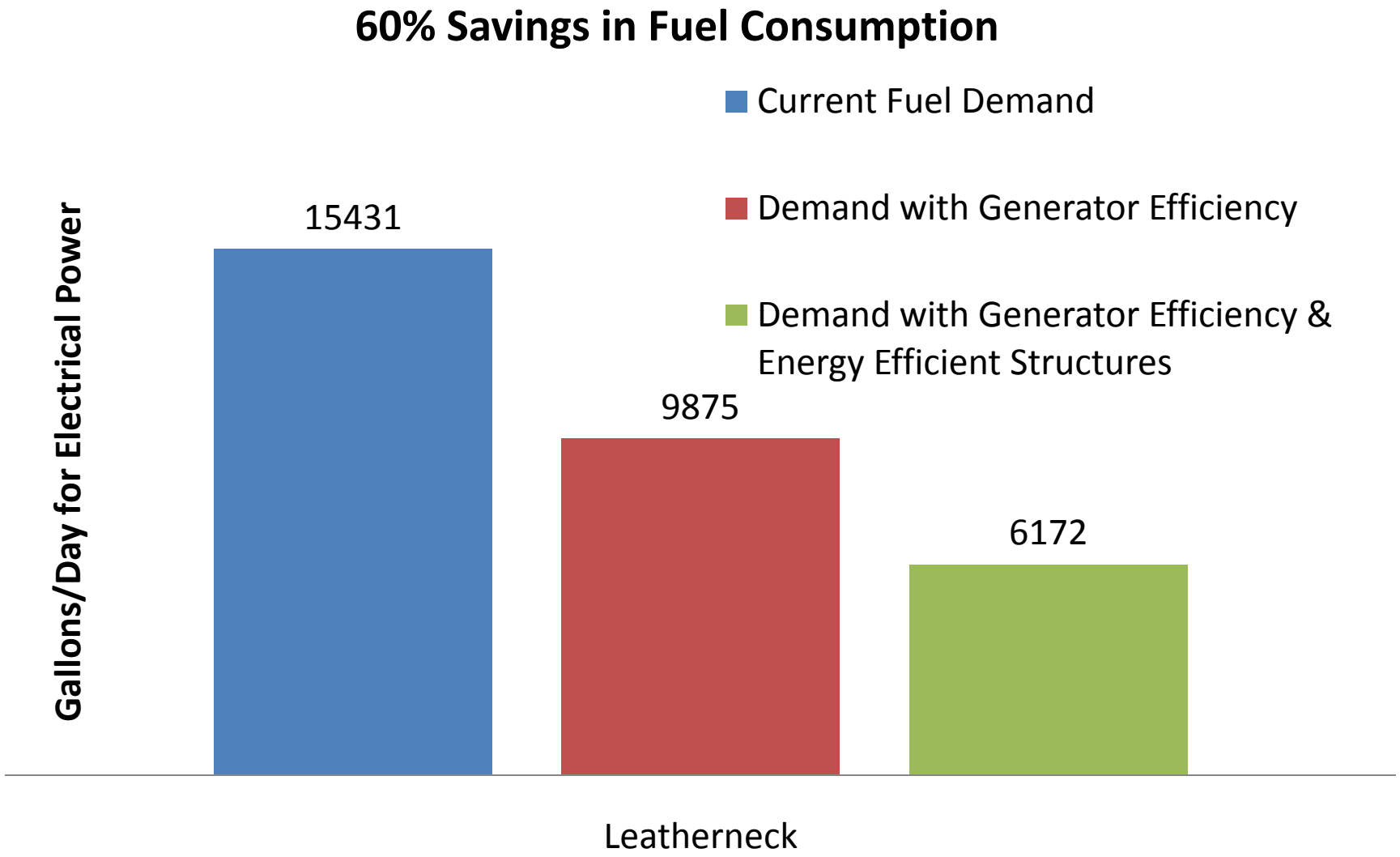
- Methods Exist
  - Trained Marines
  - Tools such as AutoDise
- Results
  - Take 2/3 of generators off line
    - 65 instead of 196
  - 36% less fuel needed for electricity
    - 15% reduction in Leatherneck fuel demand

Improve Structure Energy Efficiency



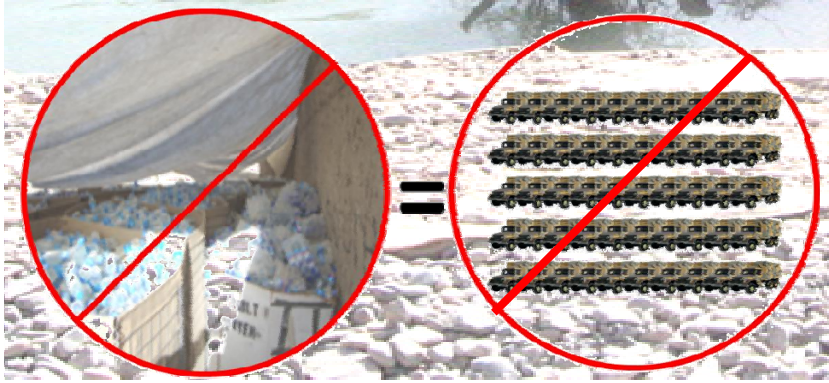
- More Energy Efficient Structures
  - ≥50% increase in efficiency from HVAC alone

Multiple Efficiency Measures



Eliminate Bottled Water

- Water is available in the AOR
- POR and COTS solutions exist
  - TWPS in use at multiple sites
  - LWPS in final testing
  - Solar powered solutions
- At the Operational Level
  - Significant Financial Savings
- At the tactical level
  - 50 trucks off the road every week
- Water certification is the greatest hurdle



Field Self-Sufficient Patrol Base

C.O.C.

LWPS

Billeting quarters

DREAM

Composting toilets

decreased fuel storage
(air drop fuel - infrequently)

Reduce Demand

- Its Free
  - Reduce Load
    - People
  - Change Behavior
- Campaign Plan
  - Awards for Design

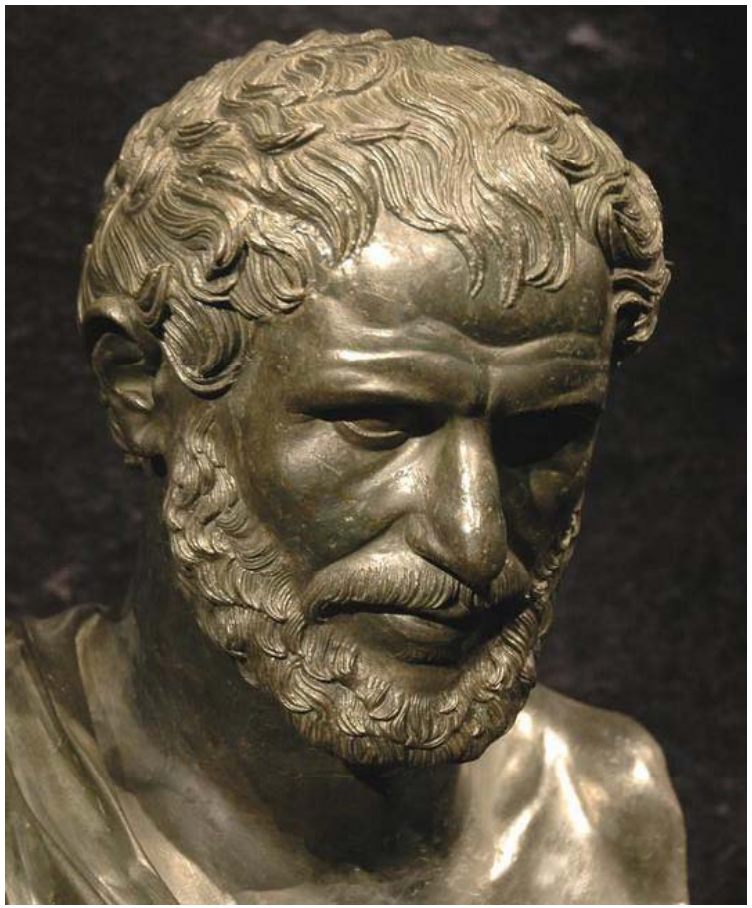
Mid Term Recommendations

- Reduce demand for expeditionary power
- Increase and accelerate expeditionary capability to leverage alternative power and water sources
  - Planning tools and methods
  - Confirmation methods
  - Extraction methods
- Implement solutions that have enduring function
  - Leave behind solutions
    - Infrastructure
    - Power
    - Water

Far Term Recommendations

- Self Sufficient Expeditionary Capability
  - Increased Capability
    - Enhanced performance at the tactical edge
  - Minimum (zero) footprint
    - Recycle/create what is needed
    - Reduce/eliminate waste
  - No adverse affects on environment
    - Natural/Physical/Human

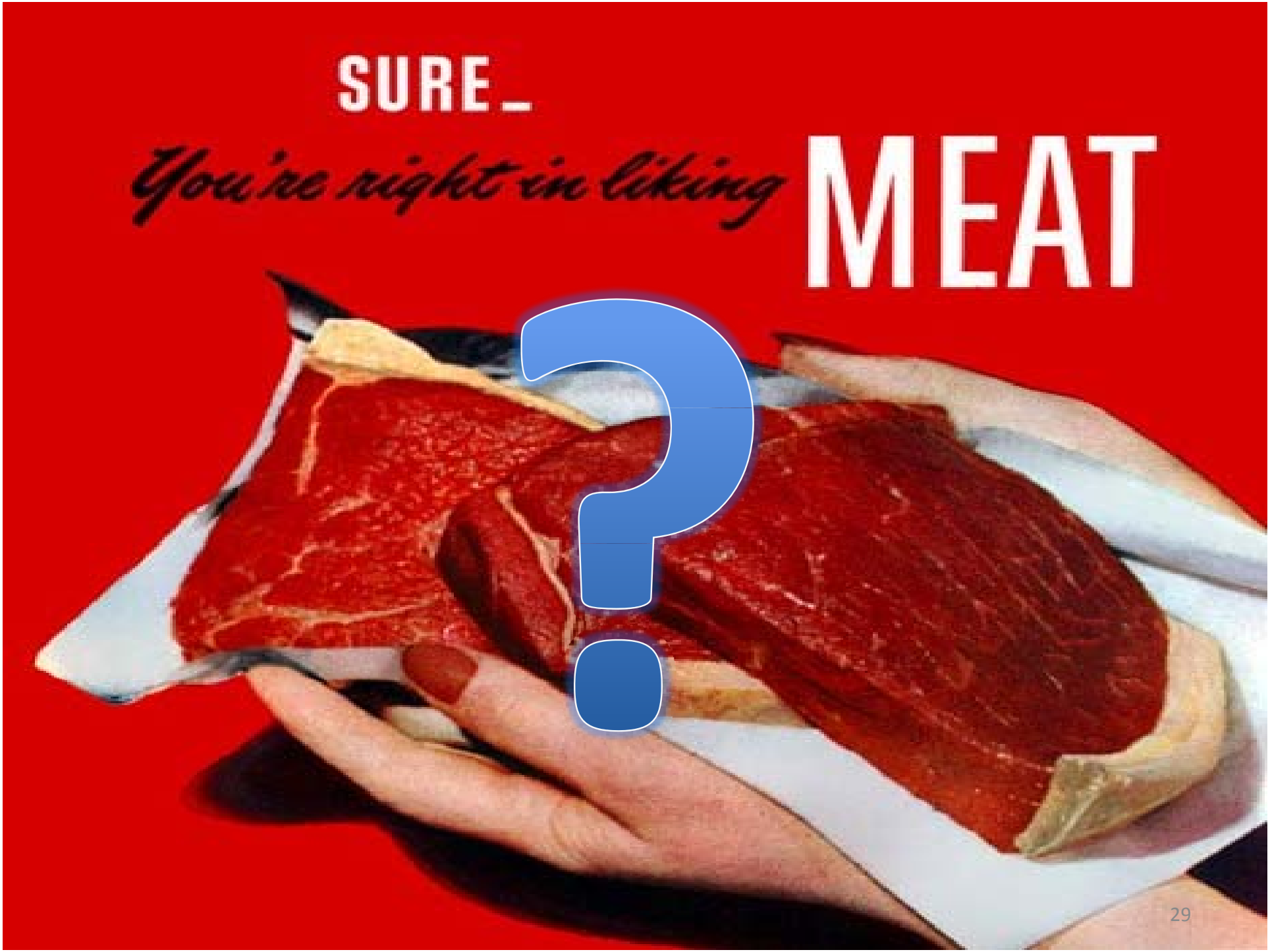
Caution



Heraclitus of Ephesus

- You cannot step twice into the same river


Questions?


SURE_
You're right in liking
MEAT