



Looking to the Future:

# Assessing Green(er) Operations

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# Structure

- Background and context
- Analysis needs
- Current progress
- Summary

# Background

- What to choose for ISMOR25?
  - A retrospective...
  - Something a bit different
- What was I working on 25 years ago?
  - Possible operations in West Germany
  - Battlegroup, Corps, Army Group level studies – 1Br Corps and Northern Army Group
- The link...
  - Factors such as the likely environmental impact of those operations, climate change et al were not exactly at the forefront of our analysis!
  - Except... even then, cost of training, compensation for training damage and disruption etc was a consideration.

# Context

- Two major initiatives:
  - “Sustainable Procurement” agenda
    - driven by 2<sup>nd</sup> PUS
  - Defence Technology Plan and associated Capability Visions
    - driven by S&T Director

# Sustainable Procurement

- A high-level cross-government agenda
  - The Office of Government Commerce (OGC) is leading the establishment of a cross-government policy framework to enable Sustainable Procurement
- Focus is predominantly on cross-government procurement of conventional goods and services...
  - but it will impact significantly on MoD's activities
- The MoD challenge is to fulfil its needs in as sustainable a manner as possible but without compromising operational requirements
- This will involve consideration of the environmental, social and economic consequences of all aspects of projects and operations:
  - Cradle-to-grave; “factory-to-foxhole” and across all Defence Lines of Development
- The MoD position is to embrace Sustainable Procurement and act as a proactive lead

# DTP Capability Visions

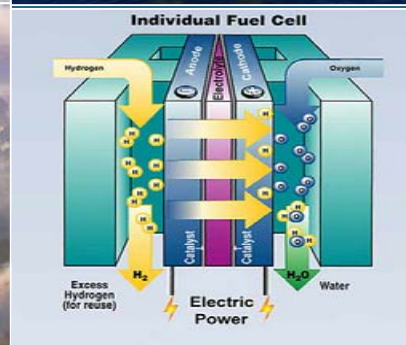
- The DTP maps out all the MoD's research goals
  - To “enable transparent prioritisation and coherency across MOD's R&D programme”
- As part of this, Capability Visions are being developed in a number of specific areas of particular challenge for the future
- One of these addresses:
  - Reduced Dependency on Fossil Fuels for Future Defence Operations

# (Draft) Capability Vision

## Reduced Dependency on Fossil Fuels for Future Defence Operations

To establish the options for Future Energy supply for future defence forces and operations by investigating the impact and opportunities for exploitation of alternative energy sources and technologies as they develop in the civil market.

Innovation across all Defence Lines of Development will be necessary to achieve the overall objective.



# Context

- Two major initiatives:
  - “Sustainable Procurement” agenda
  - Defence Technology Plan and associated Capability Visions
- Also, ongoing affordability and efficiency-related targets exist in areas such as:
  - Usage of the Defence Estate and Infrastructure
  - Future fuel and power use
- Clearly, there is significant linkage between the analysis required in support of these various initiatives



# What are the key analysis needs ?

- A clear baseline
- A framework for comparing options and integrating elements into an overall solution
- An understanding of *efficiency* and *effectiveness* related aspects

# A Clear Baseline

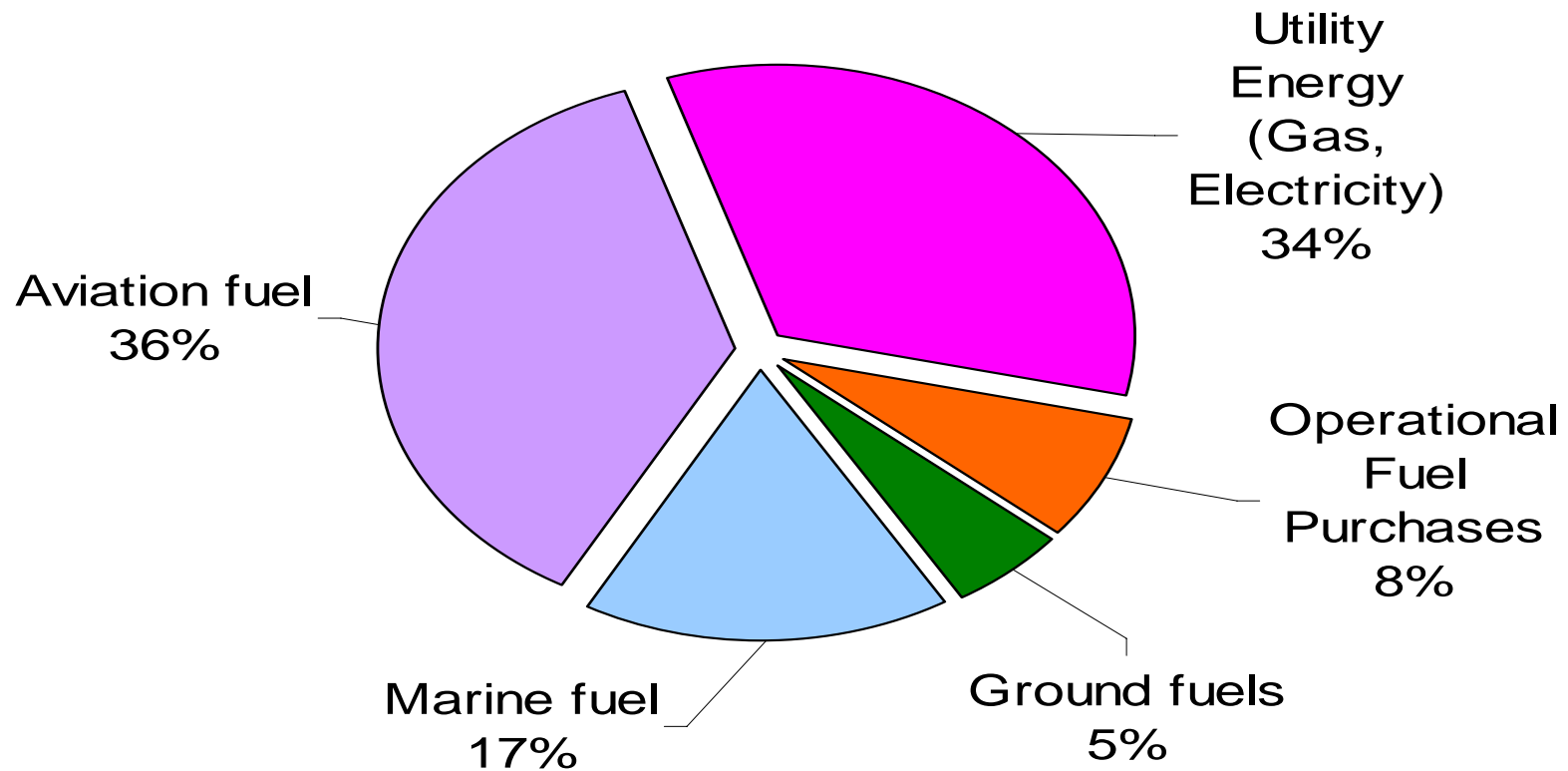
- Why ?
  - If we don't understand what we're currently doing/using (and/or planning to do/use) then managing change is very difficult !
- The baseline needs to include inter alia:
  - Key metrics
  - Visualisation methods that show total “size” and its breakdown
- Examples include:
  - Pie charts, “Manhattan skyline plots”

# Some examples related to fuel use

- How do we best capture total fuel usage for the armed forces ?
- How can we categorise and cross-link those usages?
  - Eg, how much fuel do we use transporting fuel ?!
  - Hence, what is the “fully-burdened” cost of fuel usage ?
- Are there (relatively) easy areas to tackle ?
  - Eg, how much fuel is used for training; and (less easy!) are there aspects of live training that could be replaced with synthetic training?
- Current emphasis is on metric development; and on data collection, collation and harmonisation

# Some examples – MoD CO2 Emissions

## Estimated Breakdown of MOD CO2 emissions in 06/07

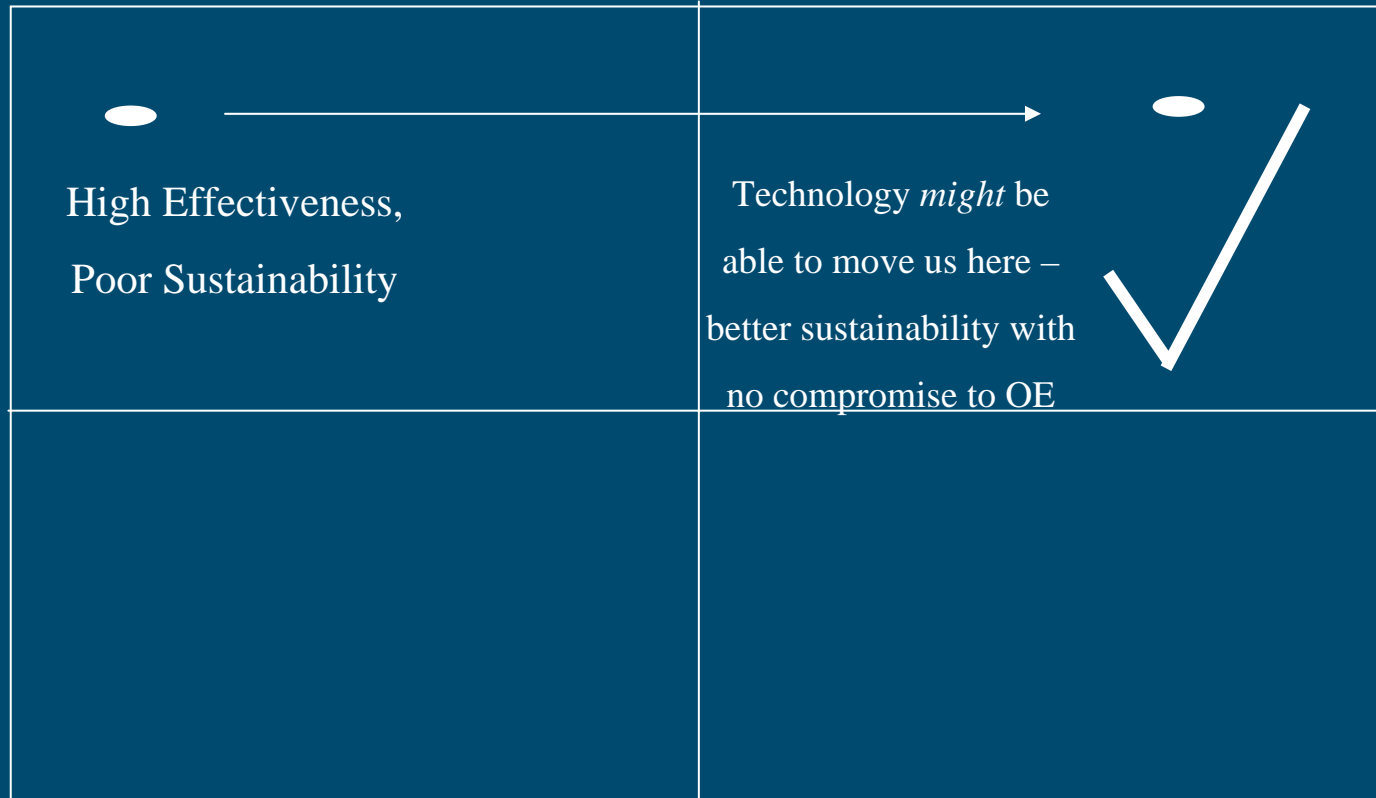


# An Analytical Framework

- An overall framework allows the utility, viability and cost-effectiveness of potential solutions to be assessed
- Links strongly to the need for a baseline and to the establishment of suitable metrics
- For example, many potential technology solutions are in development – fuel cells, bio-fuels, wind and solar power etc:
  - Which are worth MoD investing in ?
  - How would they be used – which lead to “doing better things”; and which to “doing things better” ?

# Efficiency and Effectiveness

## Example 1

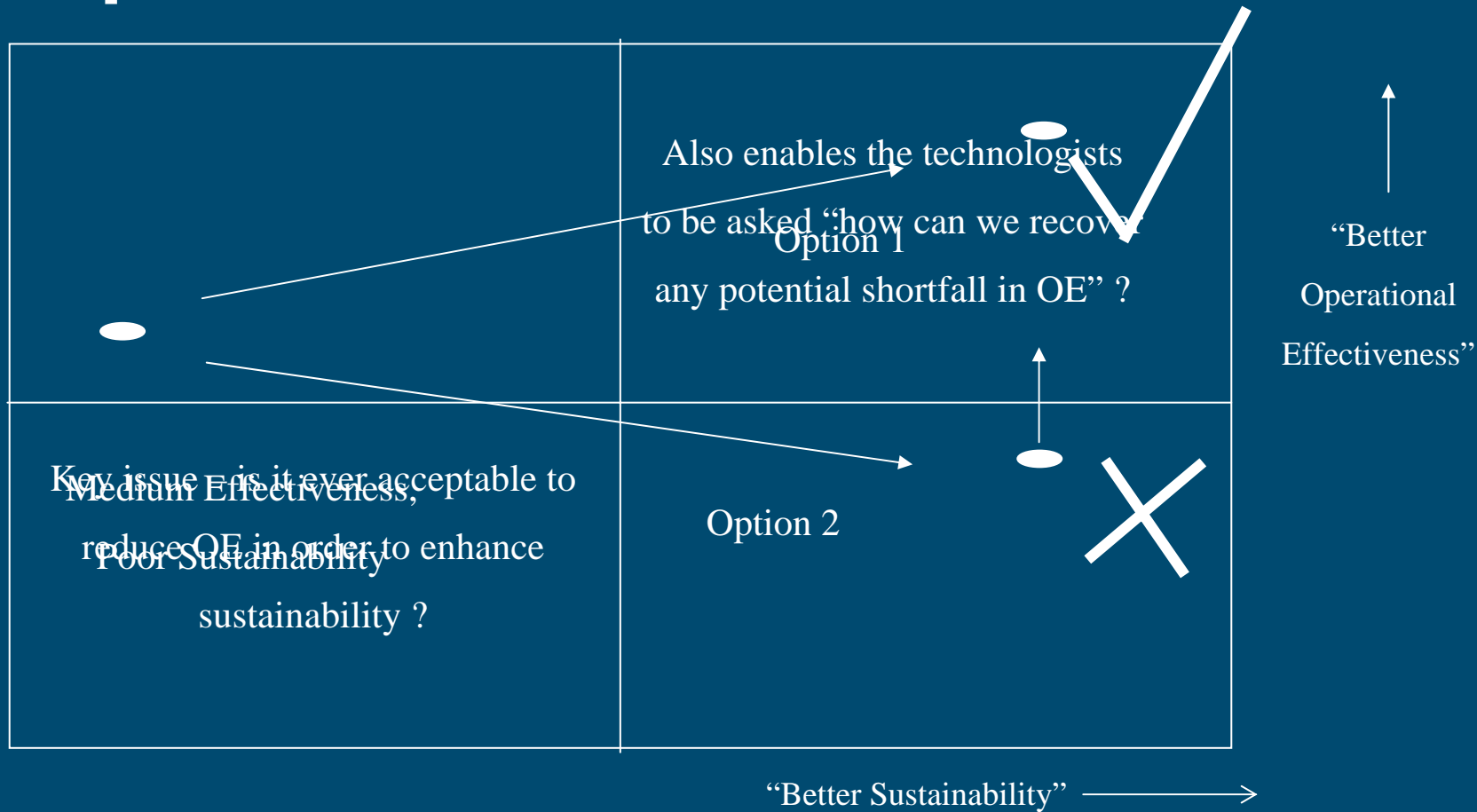


↑  
“Better  
Operational  
Effectiveness”

“Better Sustainability” →

# Efficiency and Effectiveness

## Example 2



# Current progress - where are we now ?

- Very much work in progress!
  - Working closely with industry and academia
- Current emphasis is on:
  - Establishing a baseline using suitable metrics
  - Collating and harmonising data sources
  - Developing an analytical framework for integration
  - Niche studies in specific areas such as synthetic training and fully-burdened cost of fuel



# Summary

- Issues such as:
  - Sustainable procurement
  - Future oil dependency
  - Climate change
  - etcare here to stay!
- Analytically, we need to get ahead of the game in developing approaches to the analysis of the impact of such issues

# Questions, Observations ...



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