



NZDF Estate Sustainability  
- A Govt Organisation's Perspective

## Presentation Outline

- Defence Estate
- Management Model
- Policy and Drivers for Change
- Environmental Mgnt
- Sustainability in Building/ Construction
- Energy Efficiency and Water Conservation
- Waste Minimisation
- Conclusion



## Defence Estate

- > 5,000 buildings – nation wide, ave age 45yrs, mix of very old and very modern building technology and systems
- 860,000m<sup>2</sup> of buildings
- 76,000 ha land
- Replacement value (infrastructure) \$2.8Bn
- \$90M/annum budget
- Diverse portfolio
  - trg areas (Tekapo and Waiouru high country)
  - contaminated sites
  - heritage sites
- Energy expenditure \$13M
- Environmental Mgnt Budget \$2.8M



## Management Model

- DSS Property Group Hub and 9 spokes
- Separate estate policy writing - HQ NZDF
- Regional Energy Mngrs x3 (best practice 1 per \$4m of energy spent)
- Environmental Section and Officers located in spokes
- Outsourced operational delivery e.g. FM Svc providers and construction contractors.
- Sustainability and asset mgnt focused Facilities Maintenance (FM) Contracts
- Use of Pre qualified Consultant Panels

## Drivers For Change

- ~~Govt3~~
- NZEECS and EECA
- RMA
- Water Conservation
- Focus on...
- **Minimising waste in all its forms is just plain good business sense**
- Social tipping point
- The 'Green' movement



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## Defence Force Order 23/2007 Sustainability Commitment and Principles

### Purpose

1. The purpose of this Defence Force Order (DFO) is to issue a statement of commitment and a set of policy principles to promote sustainable development<sup>1</sup> (sustainability) within the New Zealand Defence Force (NZDF).

### Background

2. Government policy requires that NZDF improve the sustainability of its business practices. This can best be achieved by integrating sustainability as a theme into NZDF policy and practices through an ongoing programme of improvement. Essential to the success of that programme is clear leadership and commitment to sustainability, and an agreed set of principles to guide policy development and practice improvement.

### Statement of Commitment

3. NZDF is committed to improving the sustainability of its business practices as part of the effective and efficient delivery of Defence outputs.

### Sustainability Principles

4. The following general principles of sustainability apply to all relevant NZDF activities:
  - a. **Principle of Integration of Economic, Social, Cultural and Environmental Considerations:**
    - (1) The integration of economic, social, cultural and environmental considerations in decision making processes will help ensure NZDF delivers Defence outputs and minimises adverse impacts on communities and the environment.
    - (2) Measures to be adopted for sustainability should be in proportion to the significance of any issue being addressed.
  - b. **The Precautionary Principle.** The best information available should be used when making decisions and a precautionary approach taken when faced with uncertainty and significant risks.
  - c. **Principle of Inter-generational Equity:**
    - (1) The present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations.
    - (2) Consideration needs to be given to the long term implications of decisions, including whole-of-life costs/benefits.
  - d. **Principle of Shared Responsibility.** Protection of the environment is a responsibility shared across society. NZDF should promote cooperation and partnership with stakeholders (including industry and other government agencies) where appropriate to reflect that shared responsibility.

- e. **Principle of Resource Conservation.** The limited availability of natural resources (such as land and water) means resource use should be efficient and unnecessary consumption avoided.
- f. **Principle of Environmental Protection:**
  - (1) The prevention of environmental degradation (including reducing greenhouse gas emissions) and protection of ecosystems should be fundamental considerations in decision making.
  - (2) The production of waste should be minimised.
- g. **Principle of Accountability:**
  - (1) Responsibility and accountability for NZDF environmental impacts need to be clearly identified.
  - (2) Stakeholders should have reasonable access to information about the management of NZDF environmental impacts and opportunity to participate in policy and programme development as appropriate.
- h. **Principle of Continuous Improvement.** NZDF should seek to continuously improve its performance in managing environmental risks and impacts.

### Implementation Programme

5. General Manager Organisational Support (GMOS) will coordinate an ongoing programme to integrate the sustainability principles into current NZDF policy and practice and to report periodically on progress. The intent of the programme is to improve NZDF 'business as usual' on a cost neutral basis.

### Point of Contact

6. The point of contact for matters relating to this DFO is Environmental Policy Manager, Development Branch, Headquarters NZDF.

### Cancellation

7. This DFO is to remain in force until its contents are incorporated into appropriate publications.

Dated at WELLINGTON this 30<sup>th</sup> day of January 2008.

**J. MATEPARAE**  
Lieutenant General  
Chief of Defence Force

1. "Development that meets the needs of the present without compromising the ability of future generations to meet their own needs." (World Commission on Environment and Development, *Our Common Future*, The Brundtland Report, 1987.)

- **NZDF Environmental Goals**

- NZDF Environmental Policy (DFO 32 Chaps 13 & 14):
- comply with the provisions of the Resource Management Act 1991
- the NZDF shall promote, and adopt in its practices, the principle of the sustainable management of natural and physical resources
  
- Ground up approach to Environmental Management:
- Producing Env'tal Mgmt Plans (EMP's) for units on the ground (e.g. RNZE), and high risk facilities (e.g. rifle ranges)
- Setting up compliance monitoring and auditing systems (CSVue)
- Setting up an environmental data management system
- End goal – combine all under an organisation-wide Env'tal Mgmt System (EMS)

## Sustainability in Building Design

- Defence Estate Management Manual
  - Include 6.5% as an allowance for sustainability in project cost estimate
- Standard Design Brief
  - Refers to DFO 23/07
  - 4 Star Green Star NZ certified rating - 5 Star rating from 2012
  - overall energy usage of 200Kwh per m2 of building area within camps and bases
  - Environmentally Sustainable Design (ESD)
  - BMS
  - Resource Efficiency in the Building and Related Industries (REBRI)
- Functional Design Brief
  - Conceptual Design Details
    - Energy efficiency and sustainability initiatives





## Sustainability in Building Delivery

- Defence Estate Management Manual/ SOP
  - Energy Manager Involvement in Project Delivery Team
  - Energy Design Checklist (completed by Project Mngr)
  - Energy Mngr initial review of Draft design
  - Energy Consultant review of Detailed Design



- Energy Audit Costs

Estimated budgetary costs (project to pay):

For smaller projects \$3,000 - \$5,000

For larger site projects \$30,000

Projects over \$10,000 may qualify for EECA funding assistance.

The indicated costs above do not allow for computer simulation that could add \$10,000+ to the costs of the audit.

## Energy Efficiency and Water Conservation

- Energy Mgmt Plan (budget, energy mngrs, method)
- \$300k/annum budget for projects ( $\leq 5$  yr payback test)
- Energy Audit for each Base every five years
- Data Mgmt/ Monitoring and measurement
- Centralised controls more effective than behaviour change
- Electricity Contract (Efficiency focussed, better billing)
- EECA - Energy Achiever 2005 ● Needs Improvement  
2009 ● Got it Right
- 6% (\$700k) reduction in consumption FY09/10 compared to FY08/09
- Next steps – submetering, energy load mgnt systems for all bases
- Water – monitoring and measurement (work in progress)



## Energy Mgmt Achievements



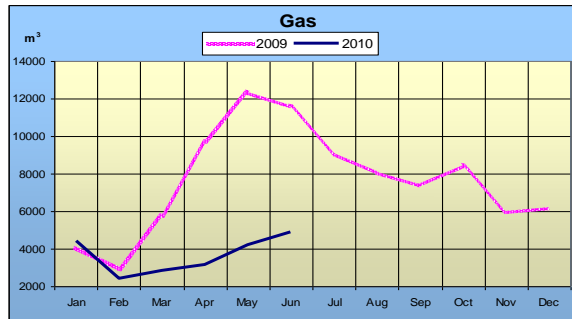
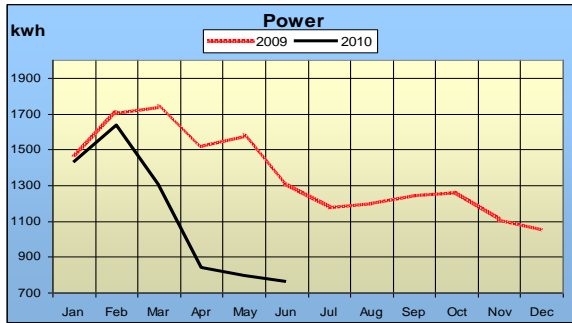
5 Sqn Hangar Lighting Change Project

40% EC spt funding. Project cost \$60k, annual savings \$20k



The new and the old I

# Energy Mgmt Achievements



Linton Camp Pool Controls Replacement

Reduced energy consumption at the pool complex by 40%

## Energy Mgmt Achievements



Solar Panel assisted Hot water systems  
on Barracks



Mechanised Pool Covers

## Energy Mgmt Achievements



Waiouru Camp Coal Boiler Heating System Conversion to Wood Pellets  
10,500t of CO<sub>2</sub> emissions saved

# Waste Minimisation

NEW ZEALAND DEFENCE FORCE  
TE OPN KĀTUA O AOTEAROA  
JOINT LOGISTICS AND SUPPORT ORGANISATION

## Waste Audit Late 2008

The NSC Sustainability Group sort the waste into each waste stream to see what we are throwing away.

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NEW ZEALAND DEFENCE FORCE  
TE OPN KĀTUA O AOTEAROA  
JOINT LOGISTICS AND SUPPORT ORGANISATION

## NSC Waste System

Each staff member is responsible for their own waste

- Paper Mixed
- Food Scraps
- Waste Non-Recyclable
- Mixed Glass / Cans Plastics
- Paper Hand Towels
- Cut Flowers and leaves ok
- Food-soiled non-waxed paper ok

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Waste separation systems cost approx \$80 -100k per Base to set up

## Waste Minimisation



Worm farm saves \$2000/wk of dumping levies



## Conclusion

- Society reached ‘tipping point’/ green movt
- Need senior mgnt buy in
- Need overarching policy

• **Minimising waste in all its forms is just plain good business sense**

- ... in business cases
- Consultant in design process
- Centralised controls more effective than behaviour change

# I RECYCLE

