
DEFENCE ENERGY MANAGEMENT STRATEGY

INTRODUCTION

Purpose

1. This Document sets out Defence's strategy for improving energy efficiency, reducing energy wastage, and for developing systems and procedures which both implement the Defence Energy Management CEI 5.6 and meet the requirements of the Commonwealth Energy Policy. Within the context of not compromising Defence capability, all areas are to consider their roles in relation to the implementation of measures which improve energy efficiency and reduce energy wastage.

Background

2. The Commonwealth Energy Policy (the Energy Policy) *Measures for Improving Energy Efficiency in Commonwealth Operations* sets mandatory energy efficiency targets to be met by 2002-03 and compliance with additional measures. Defence has demonstrated a strong commitment to the Policy and is taking a leading role in pursuing sustainable energy management practices in all of its activities and facilities.

Application

3. The content of this Strategy applies to all Defence sites and personnel, and covers all activities, services, appliances and equipment in Defence. The efficient management of energy, including the prevention of energy wastage is a responsibility for all in Defence. Base, Formation and Unit Commanders and Regional Managers in Defence are obliged to ensure that all staff comply as far as possible with the relevant aspects of this strategy. Energy related clauses consistent with this Strategy are to be developed for inclusion in relevant Defence contracts and processes; including Garrison Support Services, Comprehensive Maintenance Services contracts, project management and building contracts, and in arrangements for the use of Defence facilities and equipment by third parties such as foreign forces.

4. Energy issues in Defence cover a very broad spectrum from considering energy efficient concepts and designs for major new platforms and support equipment, to introducing energy efficient re-furbishments to existing buildings. Defence also contributes to research into renewable technologies such as wind and solar power. This Strategy directs the development of specific energy implementation initiatives, some of which will be site based energy management plans, energy objectives within Environment Management Systems (EMS) or updates of key manuals and instructions as they relate to procurement.

Terminology

5. A glossary of terms used in this Strategy is in Annex B.

Related Legislation, Policies, Systems and Guidance Documents

6. Related legislation, policy documents, and systems which support the Defence Energy Management include:
 - a. *Environmental Protection Biodiversity and Conservation Act 1999* (EPBC Act)
 - b. Commonwealth Energy Policy (*Measures for Improving Energy Efficiency in Commonwealth Operations*)
 - c. National Strategy for Ecologically Sustainable Development
 - d. National Greenhouse Strategy
 - e. Defence Environmental Policy
 - f. Defence Environmental Strategic Plan
 - g. Defence Environmental Management System (EMS) on line
 - h. Chief Executive Instruction (CEI) 5.6 Defence Energy Management
 - i. Defence Greenhouse Strategy
 - j. Defence Procurement Policy Manual (Section 3 Chapter 3.16 Environment in Procurement)
 - k. Defence Infrastructure Manual
 - l. Environmental Purchasing Guide (Commonwealth)
 - m. DI(G) B/6/2003 Defence Policy on Life Cycle Costing Analysis
 - n. Capability Systems Life Cycle Management Manual 2002

DEFENCE ENERGY POLICY

7. Defence is to pursue the efficient and economic use of energy in:
 - the planning, utilisation, and maintenance of Defence facilities and equipment;
 - Defence activities, and in the purchase of goods and services without compromising capability or the level of personnel amenity or safety.
8. To support these aims Defence is to:
 - a. Encourage widespread involvement in energy conservation by an effective two way communication strategy, including Commanders and Senior Management introducing measures to reduce energy wastage;
 - b. Reduce energy consumption and green house gas emissions at existing Defence facilities through cost effective energy efficiency improvement measures;
 - c. Minimise additional energy usage and greenhouse gas emissions resulting from the development of new or refurbished facilities through a combination of energy efficient designs, setting of energy targets for new facilities and incorporating renewable energy technologies wherever these can be justified; and

- d. Choose renewable energy technologies or lower greenhouse emitting fuels wherever an opportunity to do so exists. This choice will only be waived if there is a significant disadvantage on operational capability or whole of life cost basis.

DEFENCE STRATEGIES AND SYSTEMS IN SUPPORT

Defence Capability

- 9. Defence processes are to ensure that energy efficiency is taken into account at all stages related to the procurement and operation of Defence capability:
 - a. Capability concepts and concept development such as for platforms and Defence communications facilities are to include energy as a factor for consideration, noting that fuel efficient platforms may also assist in maximising capability. Where relevant, designs should include provision for sub-metering of energy use;
 - b. The Quality Environmental Management System (QEMS), as an overarching business system, assists project officers consider the environmental impacts associated with capability development and equipment acquisition. Greenhouse gas emissions through expected fuel use are considered environmental impacts in this context;
 - c. Once introduced into service, Defence platforms, vehicles and facilities are to be operated and maintained in a way which avoids energy wastage without compromising training outcomes, exercise scenarios and operational imperatives;
 - d. Where appropriate Defence in support of capability is to include environmental considerations such as energy usage and efficiencies, without compromising training outcomes;
 - e. Where appropriate the use of simulation technology is to be considered for use to complement on-ground training activities;
 - f. Where appropriate, renewable energy options such as solar and wind installations are to be considered to assist in the delivery of, and support to Defence capability; and
 - g. Implementation of the Defence EMS by Groups and Services is to include energy considerations.

Defence Environment Management System (EMS)

10. The Defence EMS is aimed at improving Defence's management of environmental risk and ensures that environmental values and practices are integrated into Defence business processes and day to day management. The Defence EMS is to be implemented at all levels of the organisation and has been modelled on the international standard for environmental management systems, ISO 14001.

11. At the strategic level, the Defence EMS has identified energy use as a significant aspect in the Defence Environmental Strategic Plan, and has outlined initiatives to address this. As energy use and energy management initiatives have been identified at the strategic level, each site level EMS addresses energy use and energy

management through specific site environmental or energy management plans and activities.

Defence Environmental Strategic Plan 2002 - 2005

12. The Defence Environmental Strategic Plan 2002 - 2005 identifies natural resource consumption (including energy use) as among its five most significant environmental issues. Defence is committed to implementing a full range of measures aimed at improving all aspects of energy management. Key among these initiatives is the development of Regional Energy Management Plans, and the introduction of specific site Environment Management Systems and Site Energy Management Plans at selected sites by June 2005. Energy management is expected to be an enduring issue and will be a requirement of future Defence Environmental Strategic Plans.

Regional and Site Energy Management Plans.

13. Regional and Site Energy Management Plans (REMPs and SEMP) or Energy Chapter inclusions in Base and Training Area Environmental Management Plans (EMP) are to be the major guide for implementing energy efficiency initiatives (technical and non-technical solutions) into the everyday operation and maintenance of Defence buildings, including efficient work practices, fittings and systems. The SEMP is to identify site priorities which reflect regional and site specific circumstances and guide the application of energy standards. At sites where there is an EMS in place, the SEMP is to be integrated into all relevant EMS documentation and processes.

14. SEMPS and REMPS will be reviewed and maintained within the Regions. Regional Managers and Base Commanders will be required to endorse and lead the implementation of the SEMPS; and ensure the plans are widely distributed and available on the website.

Monitoring Energy Use – Defence Environment Performance Reporting Framework

15. Defence is committed to a strategic approach to environmental management, including developing performance measures. Electricity, gas and certain types of motor fuels are being monitored quarterly as indicators for energy use. Monitoring assists in identifying high use sites and in developing, where necessary, improved site level energy management strategies.

Increasing Energy Awareness in Defence

16. Defence is to increase awareness and knowledge of energy and greenhouse issues among Defence personnel and contractors working for Defence as follows:

- a. All personnel are to participate in relevant energy conserving initiatives which may be outlined in Defence posters, websites and other information guides.
- b. Include energy matters on agendas for site/region based environmental working groups;

- c. Develop a Defence Energy Management Network, aimed at working jointly on relevant energy initiatives, sharing energy management knowledge and regional lessons learned, and supporting the regions with energy conservation and awareness measures - including web based products;
- d. Including energy conservation awareness in environmental awareness training;
- e. Make all Defence site personnel aware of the priorities and requirements within Regional Energy Management Plans (REMPs) and Site Energy Management Plans (SEMPs); and
- f. Develop and maintain Web based environment/sustainability training modules which include energy considerations.

Defence implementation of measures required by the Commonwealth Energy Policy are at Annex A.

Areas of Defence with a Role in Energy Management or Reporting

39. Responsible areas in Defence with varying roles in supporting or contributing to implementing the measures, including mandatory reporting are described below.

DEFENCE ENERGY MANAGEMENT	
Improvements in energy efficiency and reduction in energy wastage in all activities at Defence facilities	All Defence Personnel
Specific Measures	Branch
3.2.2 Energy Targets	DES (ASTFS)
3.2.4 Fuels	JFLA (DMO)
3.2.4 Commonwealth Vehicle Fleet (Passenger Vehicles)	Lease Plan DGLMS
4.1 Building Minimum Energy Performance Standard	EH&R ASTFS
4.2 Leasing Agreements	ASTFS DGRB
4.3 Energy Audits	DGRB
4.4 Housing	EH&R
4.4.1 Planned New/ Leased Housing Applications	DHA
4.4.2 Evaluation of Existing Housing	DHA
4.5 Appliances and Office Equipment	EH&R/DMO
4.5.1 Appliances	CPO (DMO) ASTFS
4.5.2 Office Equipment	CPO (DMO) ASTFS
4.6 Renewables	EH&R DGIAD

Annex A**DEFENCE IMPLEMENTATION OF MEASURES REQUIRED BY THE COMMONWEALTH ENERGY POLICY**

17. The requirements referred to below are from the Measures for Improving Energy Efficiency in Commonwealth Operations (Commonwealth Energy Policy). A summary of each requirement is included in italics.

Annual Energy Reporting and Accountability – Requirement 3.1

The Secretary is required to report the energy performance of Defence to the Defence Minister annually, and to forward summary reports of energy consumption (including fuels and passenger vehicle fleet fuel performance and environmental performance against the ‘green vehicle guide’) to the Australian Greenhouse Office. The Australian Greenhouse Office collates energy data from all Commonwealth agencies and tables a whole of government energy consumption report before the end of December each year.

The Secretary of Defence is also required (under recommendation 1 ANAO report No 24 of 2002/03) to report to the Minister as to whether all the requirements of the Government’s energy policy, “Measures for Improving Energy Efficiency in Commonwealth Operations” were complied with and, where this does not occur, an indication of the areas of non-compliance, and either the steps being taken to remedy the situation, the barriers to implementation, or a statement that specified requirements are not considered relevant to Defence. The requirement was set in a recommendation by the ANAO and accepted by Defence in November 2002.

18. Defence is to develop improved systems for reporting energy use which take account of changes in Commonwealth Energy Policy and clearly describe data requirements and areas responsible within Defence.

Energy Reduction Initiatives (compliance with Energy Reduction Targets) - Requirement 3.2

Defence is required to meet the Commonwealth target for Defence establishments, being a maximum aggregate energy consumption of 2.5 million Gigajoule and to achieve specific Commonwealth targets for maximum energy intensity in office accommodation. Energy consumed in Office-Tenant Light and Power is to be less than 10,000 MJ/person/annum and energy used for office-Central Services is to be less than 500 MJ/m²/annum.

19. In addition to the Defence systems and strategies which support energy conservation, (described above) Defence is to

- a. identify specific measures and energy saving opportunities (both technical and non-technical) for reducing energy consumption and greenhouse gas emissions;
- b. invest in specific conservation measures, including relevant tariff negotiation as part of the tendering and contracting process for the supply of energy to Defence;
- c. ensure the inclusion of energy conservation or efficiency related clauses within all relevant Defence contracts including CSIG Garrison Support Services and Comprehensive Maintenance Services contracts, and Infrastructure contracts.

Metering - Response to Expectation Raised in 3.2.1

The Defence Establishments target is based on aggregate energy consumption in the recognition that Defence bases containing many buildings of varying types, typically have one single meter at the front gate. It is expected that metering advances will progressively enable the Department of Defence to establish relevant energy intensity targets for a range of activities in many of its establishments.

20. Defence will include provision for metering of electricity and gas at all new major Defence sites and buildings. Over time all existing Defence sites will be evaluated in terms of establishing priorities for the introduction of sub-meters. Adequate metering is to be progressively implemented from 2003-04 onwards at priority sites. Major Defence sites will develop a plan for implementing a Site Utility Metering System measuring electricity and gas consumption.

Fuel Consumption Targets - Requirement 3.2.4

Defence is also required to report to the Australian Greenhouse Office annually on its consumption of liquid fuels. The Commonwealth Energy Policy refers to the future application of fuel consumption targets for the Commonwealth vehicle fleet and to the development of "options to strengthen action on fuel consumption in the fleet". In April 2003 an APS round table agreed a target that 28 % of all Commonwealth tied contract fleet vehicles are to score higher than 10 on the green vehicle guide by the end of 2005. It was also agreed that Departments should report annually the results under the application of the Green vehicle guide through the whole of government energy report.

21. Managers of all business units are required to pursue efficient use of liquid fuels, to the extent permitted by their operational priorities. Further guidance on the use of liquid fuels in Defence is available from the Joint Fuels and Lubricant Agency within the DMO.

22. Defence will develop a Green Vehicle Strategy aimed at progressing the implementation of the target, and taking into account existing fleet contracts in relation to vehicle purchases. The strategy will include a policy for the use of fuel efficient cars which score better than 10 on the green vehicle guide.

Application of Minimum Building Energy Performance Standards – Defence Infrastructure – Requirement 4.1

All new and substantially re-furnished buildings, whether Commonwealth owned or where the Commonwealth is the major tenant, must meet a minimum energy performance standard. The interim standard applicable to office buildings in capital cities is the BOMA 1994 Energy Guidelines.

23. Energy performance considerations and standards are to be applied to all new buildings (owned or being arranged for lease by Defence) and to buildings undergoing substantial refurbishment, to achieve the best energy performance practicable within value for money considerations.

24. Energy conservation and efficiency is to be included as a key objective in the planning, design, development and delivery of all Defence capital infrastructure projects, including refurbishments. All Detailed Business Cases (DBC) and where appropriate, Strategic Business Cases (SBC) are to include a whole of life assessment of energy delivery and consumption systems, incorporating an estimate of

any additional energy consumption and costs that are expected to result from implementation of the project. Re-developments will comply with AS 60038-2000 Table 1 to ensure voltage levels at the load side of all transformers for the site are maintained for all operational scenarios over the life of the new facilities introduced.

25. Guidance on energy considerations, including the application of relevant building rating tools endorsed by Defence for use is to be included in the Infrastructure Manual (IM) maintained by ID. Further advice on energy matters can be obtained from Infrastructure Asset Development (IAD) Branch project managers and consultants. Further technical guidance on ESD and energy efficiency is to be provided by the Directorate of Risk Management (DRM) within ID (Infrastructure Division).

26. Defence will participate as a board member of the Green Building Council of Australia.

27. Defence is to investigate and apply rating tools best suited to Defence needs such as use of the Green Star rating for assessing the performance of new office buildings (where a minimum target of 4 stars is sought for new office buildings). Use of the SEDA Australian Building Greenhouse rating for assessing the performance of post occupancy of new office buildings (where a minimum target of four stars is sought for new office buildings) and use of NABERS.

Defence Lease Agreements – Requirement 4.2

New lease arrangements for buildings should not include any provision permitting the recovery from the tenant of the cost of energy used by building central services during normal working hours. This will ensure that building owners have an incentive to improve the energy efficiency of building central services. Designated special purpose buildings may be excluded from this requirement if a case can be demonstrated

28. Defence will endeavour to ensure that new lease agreements for buildings are compliant with clause 4.2 of the Commonwealth Energy Policy.

Energy Audits of New Defence Buildings – Requirement 4.3

All building space must be audited within one year of occupancy and thereafter at intervals of five years. All cost effective energy saving measures identified in the audits must be implemented

29. Defence will endeavour to undertake energy efficiency audits of all new and refurbished Defence buildings within 12 months of occupancy to assess actual energy usage against design and construction targets. Where projects include the addition of new or altered electrical substation arrangements, projects will include provision for appropriate metering and energy auditing to be completed within the defects liability period.

30. Defence will endeavour to build into the whole of life costing and maintenance procedures for newly constructed buildings an allocation for five yearly auditing of energy use.

Energy Efficient Defence Housing – Requirements 4.4.1 and 4.4.2

All new Commonwealth owned or leased houses to have a Nationwide House Energy Rating Scheme (NatHERS) rating of 4-star or better in all regions as it becomes available.

31. Energy efficiency and the application of relevant aspects of the ratings scheme will be applied as far as possible to new and refurbished Defence Living in Accommodation. The Defence Housing Authority (DHA) has responsibility for provision of stand alone housing (married quarters). DHA has advised that all new house constructions owned and or houses leased by DHA seek to achieve at least a 4 star energy rating.

Introduction of energy efficient appliances and office equipment – Requirements under 4.5

Departments are required to purchase only:

- *appliances and equipment labelled as 4-star or better, under the appliance energy efficiency rating label, where available and fit for the purpose*
- *office equipment that complies with the US Environment Protection Agency “Energy Star” standard where it is available and fit for the purpose.*

32. Defence buyers of office machines and equipment are to buy only machines or equipment that complies with the Energy Star standard where it is available and fit for purpose. The energy-saving features on the equipment should be enabled.

33. The Defence Procurement Policy Manual is to include a reference to the requirement.

Defence Renewable Energy Initiatives – Reference in 4.6

Departments must identify opportunities to apply passive and active solar technologies (through building orientation, use of solar hot water systems and use of photovoltaic arrays) and to seek to adopt them wherever it can be demonstrated they are cost effective.

34. Defence supports the use of renewable energy where it does not impact detrimentally on training and operational capability, is cost effective on a whole of life cycle cost basis or is otherwise considered to offer significant environmental benefits that justify additional expenditure.

35. Defence is to investigate opportunities to use renewable and alternative energy solutions (eg. solar power, wind power, water power etc.) for relevant applications in all new facilities and major building refurbishment work. Such solutions are to be adopted where practical, do not effect operational capability, and are cost effective on a whole of life cost basis.

37. Where competing fuels are each fit for purpose, support capability and the relative cost differences are minor, the fuel that will result in the lowest greenhouse gas emissions is to be selected.

38. Defence will also contribute to studies into alternative energies and new technologies where there are clear benefits to Defence and resources are available. These activities can involve the trialing of new products.

TERMS AND DEFINITIONS

Annex B

1. Defence refers to the Australian Defence Organisation.
2. Defence personnel include ADF members and civilian employees.
3. Base Commanders refers to all officers charged with the responsibility for the coordination of base operations on a single service or tri-service basis.
4. Energy refers to electricity, natural gas, heating oil, LPG, automotive diesel and renewable energies such as wind and solar.
5. Defence Environmental Management System (EMS) is aimed at improving Defence's management of environmental risk and performance in accordance with the International Standards Organisation (ISO) 14001 standard. This management system is integrated with other Defence business processes, and supports the ADF's capability while managing its environmental risks. The Defence EMS consists of three interlinked levels. A corporate level, a groups and services level and a site level.
6. Defence Environmental Strategic Plan 2002-2005 sets out how the commitments made in the Defence Environment Policy will be implemented. The Policy identifies environmental objectives and the plan provides information that allows Defence to prioritise actions and set environmental targets.
7. Regional and Site Energy Management Plans (REMPs and SEMPs) are site and region specific plans for energy management, identifying priorities and circumstances for each area. These form part of the EMS where one exists for the particular site or region.
8. Defence Environmental Performance Reporting Framework (EPRF) is an environmental performance reporting tool that assists in monitoring trends in environmental performance at the site, Group/Service and whole of Defence levels.
9. Defence Energy Management Network refers to a nationally connected group, linking all Defence regions and focusing on energy programs and initiatives.
10. Green Vehicle Guide is a tool developed by Department of Transport and Regional Services (DOTARS) and Australian Greenhouse Office (AGO) for assessing the environmental performance of passenger vehicles based on greenhouse gas emissions and fuel consumption.
11. BOMA Energy Guidelines refer to the 1994 guidelines prepared by the Victorian Division of the former Building Owners and Managers Association of Australia Limited (BOMA). BOMA has since been reconstituted as the Property Council of Australia (PCA)
12. Green Star Rating is a tool for assessing environmental performance of new buildings developed by the Green Building Council Australia (GBCA)
13. Australian Building Greenhouse Rating is a tool to assess the environmental performance of post-occupancy office buildings developed by Sustainable Energy Development Agency (SEDA) initiative
14. National Australian Building Environmental Rating System (NABERS) is a performance-based rating system that rates a building's overall environmental performance during operation developed by the Department of the Environment and Heritage (DEH)
15. US Environment Protection Agency Energy Star is a rating tool developed in 1992 which defines energy saving specifications for office equipment with power saving features.

16. Nationwide House Energy Rating Scheme (NatHERS) is a scheme to consistently rate the energy efficiency of houses for easy comparison.