

The Anglican Diocese of Canberra and Goulburn

Environmental Code of Practice

Introduction

Synod 2007 recognised that:

- The bond between Creator and creation underlies our whole relationship with God and it is clear from scripture that this bond is not just with humanity but with the whole of creation (e.g. John 1: 3; Romans 8: 20-21);
- As a consequence, it is essential that the Church takes this relationship seriously and seeks to express it rightly and fully, remembering that only those whose words result in relevant action are blessed (James 1: 22-25),
- Our generation is faced with the dual threats of human induced climate change and the highest extinction rate in human history.

In order to act as responsible stewards of creation, the 2007 Synod recognised strategies were needed in order to:

1. Use the resources of the earth responsibly
2. Conserve and promote biodiversity

This Code of Practice aims to formulate and implement mechanisms by which the Church may responsibly respond to these challenges both as a faith community and as a corporate citizen. It has been developed in accordance with the Diocesan Care for the Environment Ordinance Section 18.

Strategies

A. Responsible use of the earth's resources

The 2007 synod recognised *'the need for the Church to establish mechanisms by which it may conscientiously respond to this threat to the integrity of creation on this planet by changing its behaviour so that it does not contribute to a human-induced increase in global average surface temperature of more than 2 °C above pre-industrial levels.'*
(Synod motion 1053/7 *Shrinking our environmental footprint*)

In order to achieve this goal, this Code requires actions by the Diocese, ministry units and diocesan agencies in the three following areas:

1. Vehicles
2. Buildings
3. Water Use

B. Conserve and promote biodiversity

The 2007 Synod agreed (Motion NM/3 *Care of species and ecosystems on church land*) that inadequate management leading to the loss of listed species located on church grounds is inconsistent with our responsibility to care for creation and to preserve God's creation for the enrichment of future generations. Mismanagement also has significant legal, spiritual and social consequences; particularly as Commonwealth and State legislation protecting endangered species have strengthened in recent years.

This Code requires actions by the Diocese, ministry units and diocesan agencies in order to protect

4. Biodiversity

Actions

1. Vehicles

The aim is to shift the Diocesan car fleet to more fuel efficient and greenhouse friendly vehicles. In doing so it seeks to achieve a balance between the economic, environmental and social aspects of vehicle purchasing decisions and use.

When **purchasing** a vehicle, the Diocese, ministry units and diocesan agencies must abide by the following process:

1. Unless specific approval is obtained from the relevant agency or ministry unit governing body to purchase an alternative, purchasers must select a vehicle that achieves a Greenhouse Rating of 7 or above from the *Green Vehicle Guide*.¹
2. If approval is obtained to purchase an alternative vehicle, a short statement setting out the purchaser's rationale should be provided to the Diocesan Registrar (to allow the Commission to identify systemic problems in the Code).
3. Consideration should be given to diesel and LPG models where available.

When **using** a vehicle, users are encouraged to:

1. Drive in a manner that will minimise fuel consumption by, for example, driving smoothly and at moderate speeds.
2. Minimise vehicle use by choosing alternatives to private car travel for short trips and car-pooling or teleconferencing wherever possible.

To assist purchasers, the Registry will compile a list of compliant vehicles from which the Diocese is encouraged to purchase. The list would be compiled using the most current information available from authoritative sources relating to vehicle emission levels, fuel consumption etc and recommendations provided as to the best performers in relation to these criteria.

¹ See www.greenvehicleguide.gov.au

The Registry will also provide purchasers with access to the very best pricing for a range of highly fuel and greenhouse efficient vehicles, trade-in valuations, dealer discounts, specials on run-out models, and possible finance packaging. Information regarding the preferred time to sell will also be provided where possible.

Rating levels will be reviewed regularly to ensure that the benchmark is set at an appropriate level and that the code is achieving its desired outcome. Information will be gathered regarding vehicle purchases to assess the policy's effect on shrinking our environmental footprint.

Further practical and technical background information to assist vehicle purchasers and users is contained in the attached document and available from the Registry.

2. Buildings

The intention is to improve the environmental quality of buildings within the Diocese. In doing so it seeks to achieve a balance between the economic, environmental and social aspects of building construction and use.

When **constructing a new building or carrying out a major renovation**, ministry units and diocesan agencies must abide by the following process:

1. Before any new building or major retrofit project can be considered by the Diocese, there is a requirement that the Anglican Church Property Trust Property Development Consultation Process be adopted, any approved guidelines adhered to, and that the financial governance arrangements for construction approvals be consistent with (?) achieving progress to a higher aggregate green star rating.
2. When briefing an architect, proponent or builder on a new or major rebuilding project, they are to be provided with the document at Appendix 1. It is to be made clear that all new commercial buildings, including multiunit residential buildings, healthcare and educational facilities are expected to reach a 6 star greenstar building rating (<http://www.gbca.org.au/green-star/rating-tools/green-star-rating-tools/953.htm>). Domestic buildings are to reach a 5 star (or one above legal requirement, whichever is higher) Basix standard. The architect's and builder's briefs are to be written accordingly.
3. The brief will inform architects that the Green Building Council of Australia (GBCA) ratings will be used when selecting the preferred design, and instructs designers to use the GBCA ratings tools to present a case to support the measures proposed. They are also to provide a statement of the additional costs (if any) contributed to the design by reaching this standard and the long term financial benefits to be expected from the proposed measures.
4. The approach is designed to ensure that environmental attributes are considered in an evaluation process that is fully informed of the relevant facts, where assessment is based on accepted national standards, and where 'other criteria

being equal' selection will be based on the design that results in the least harmful effect on the physical and social environment.

Ministry units and diocesan agencies will develop their proposals according to this process unless given a specific exemption after an examination of practicality, costs and benefits by Bishop-in-Council. If approval is obtained not to meet the standards, a short statement setting out the ministry unit's or diocesan agency's rationale should be provided to the Diocesan Registrar (to allow the Commission to identify systemic problems in the Code).

When **performing minor modifications** ministry units and diocesan agencies are to seek to improve the energy efficiency of existing buildings (see '*A Green Guide for People in Parishes*', (found under "Resources" on the Commission website), and the Diocese of Bathurst document '*A carbon neutral diocese*').

Ministry units and diocesan agencies are encouraged to have an **energy audit** done of the buildings under their care to identify significant energy loss areas to assist with the development of a plan to improve building energy efficiency. Such an audit can be arranged through your electricity supplier who will also provide suggestions as to ways to improve energy efficiency (and reduce costs). Alternatively, a less detailed audit can be made using the checklist in *A Green Guide for People in Parishes*.

The option of offsetting carbon emissions related to energy consumption is now available from most energy providers as well, allowing ministry units and diocesan agencies to both offset carbon emissions and also promote green power infrastructure in the energy industry (contact the Diocesan Registry, also see Diocese of Bathurst document '*A carbon neutral diocese*').

Further background information to assist with building construction or modifications is contained in the attached document and is available from the Registry.

3. Water Use

The aim is to shift the Diocesan use of water on to a more sustainable basis as our decisions regarding sustainable water use are, ultimately, a moral choice. In doing so it seeks to achieve a balance between the economic, environmental and social aspects of water systems purchasing decisions as well as water use.

When **building** new or redeveloping old facilities, ministry units and diocesan agencies should abide by the following process:

1. Unless given a specific exemption by Bishop-in-Council after an examination of practicality, costs and benefits, ministry units and diocesan agencies will develop their proposals according to the Diocesan Building Code given above,
2. All buildings and refits must reach the standards provided in the Diocesan Building Code,
3. If approval is obtained to not meet the standards, a short statement setting out the ministry unit's and diocesan agency's rationale should be provided to the Diocesan Registrar (to allow the Commission to identify systemic problems in the Code).

For **diocesan buildings**

Registry to assemble factual information on the status of water use across diocesan facilities by

- documenting water sources for all facilities, provide a condition assessment, and identify storage capacity and consumption volume
- documenting all wastewater disposal and septic treatment facilities
- compiling a needs assessment statement and priority list.

Ensure the minimum volumes of the lowest grade water fit for purpose are used.

Water **users** are required to:

1. Ensure water is not wasted by auditing water use and carrying out the necessary repairs as described in the *Green Guide for People in Parishes* (see Commission website).
2. Upgrading facilities or changing sources where necessary to ensure the minimum volumes of the lowest grade water fit for purpose are used (eg adding rainwater tanks or changing to dual flush cisterns).

4. Biodiversity

Churches have played a crucial role in the survival of endangered species. In many cases this role is fortuitous, but is consistent with our long tradition of providing sanctuary to the persecuted. Discovering and promoting native species on church property can be a profound spiritual experience and a way to establish stronger connections both with creation and the wider community.

Listed Species and Ecosystems

If land is identified by government agencies as having significant environmental importance or where land managers (diocesan, ministry units and diocesan agencies) become aware of listed species or ecosystems on their land, land managers will:

- (i) Inform the Environment Commission in writing; and
- (ii) Consult with the Environment Commission and relevant government agencies before selling, developing, and/or changing use of land providing habitat to listed species/ecosystems.²

The Environment Commission/Registry will:

- (i) Add relevant ecological information about resident listed species/ecosystems to the database of diocesan land.
- (ii) Assist ministry units and diocesan agencies and other diocesan land managers to appropriately promote and manage endangered species/ecosystems on their land and abide by governmental regulations.³

² Note: Simply changing the use of land, or land around an area with a listed species can have significant legal consequences [such as civil and criminal penalties].

³ Recognising that many ministry units and diocesan agencies will require assistance and there is considerable assistance available from governments and community groups.

Encouraging Biodiversity

To improve the biodiversity value of church land across the Diocese, ministry units and diocesan agencies are encouraged to:

- (i) seek assistance from the Environment Commission in developing plans for the management and celebration of these special but often overlooked parts of God's creation.
- (ii) Explore ways of connecting with the wider community through the protection and care of native species.
- (iii) Contact local community and governmental organisations for further information about the identification, promotion and management of local endangered species.
- (iv) make an environmental inventory of listed plants, animals and ecosystems present on land in their care.
- (v) ensure that the environmental impact of ministry units and diocesan agencies activities receives careful consideration along with their social and financial implications (triple bottom line reporting).
- (vi) explore ways to link with local biodiversity in the way church gardens are developed and managed (see the *Green Guide for People in Parishes* for suggestions).

General Considerations

Parishioners are encouraged to apply the equivalent standards in their domestic, farming and business facilities.

The policy will be reviewed as often as is necessary and at no longer than two year intervals to ensure that the benchmarks set are at an appropriate level and that the policy is achieving its desired outcome. The information gathered will be used to assess the policy's effect on shrinking our environmental footprint and preserving biodiversity.

Appendix 1

BRIEFING OF AN ARCHITECT OR PROPONENT ON GREEN REQUIREMENTS

In addition to normal briefing documents the following documents should be included:

1. *'New Facilities for The Anglican Church – Report to The Anglican Church's Environment Commission, Canberra – December 2004.'* (see Commission website).
2. A requirement to base the design of new facilities on the principles and details of the Green Building Council of Australia, Green Star Rating system and to utilize data from the website: www.gbcaus.org to achieve a minimum of a 6 Star Rating.
3. Current Green Star Rating Tools are:
 - Green Star – Office Design
 - Green Star – Office As Built
 - Green Star – Office Interiors
 - Green Star – Office Owners
 - Green Star - Education
 - Green Star - Healthcare
 - Green Star - Shopping Centre Design
 - Green Star - Multi Unit Residential
 - Green Star - Mixed Use
4. For domestic buildings the 5 star Basix rating standard should be met.
5. For major renovations the above standards are to be met as far as is possible and the shortcoming listed and explained.

If the Proponent/Architect is of the opinion that The Diocese will benefit from variations to the minimum specifications stated, the Proponent must detail the alternative.

The Diocese expects the “alternative” specifications nominated to reflect cost effective innovation and the overall design objectives of the project.

There is an opportunity for the Proponent to provide an innovative response to the standard practice or specification indicated. Where the Proponent takes this initiative the response should indicate what the innovation is and how it is of benefit.

The following footnotes provide additional explanation to the specification where standard practice could be considered environmentally questionable.

1. **Life Cycle Impact.** The Diocese expectation regarding life cycle impact is that the materials and components used within the building will last at least twenty five years with minimal or standard cleaning and maintenance. At the same time, materials with cost effective, low environmental impact should be considered and included. The Diocese will give preference to cost effective innovations in low embodied energy and low environmental impact materials and their benefits over the life of the building. Cost effective innovations that require replacement over the life of the lease may be included if the overall environmental benefits can be shown.
2. **Material Selection.** Many standard, modern, commercial, building materials have low or minimal recycled content and are difficult to reuse and recycle. While

expecting a commercial level of finish for the project, the Diocese will give preference to cost effective innovations in the use of materials that have high recycled content and/or are easy to recycle, or the material is part of a product stewardship programme so that it is taken back by the original supplier at the end of its life. Innovation can include recycling of materials that have previously been difficult to reuse/recycle as long as this ability can be evidenced.

- 3. Indoor Environment Quality.** Many standard, modern, building materials use chemicals as part of their manufacture, content or installation. The Diocese will give preference to cost effective innovations in use of materials and solutions that have low toxicity content particularly formaldehyde and volatile organic compounds. Preference will also be given to solutions for installation that do not rely on adhesives or use adhesives that are low in volatile organic compounds and formaldehyde content. Preference will also be given to installation methods that are re-usable.
- 4. Water.** The Diocese requires its projects to be water efficient – see the provisions of the Diocesan Water policy. Cost effective innovative solutions that assist in the saving, storage and re-use of all water will be given preference.
- 5. Energy. Ventilation and Internal Conditions.** The climate is a large factor in dealing with heating and cooling and appropriate ventilation of the project. The Diocese will give preference to cost effective innovations in ventilation that increase the amount of natural ventilation and reduce the water and energy required to provide this ventilation. The Diocese will give preference to proposals that use cost effective innovations in the façade, glazing and sun shading where they allow the building to use less energy, water or resources and provide for a better quality of internal environment.
- 6. Cleaning and Maintenance.** The Diocese will give preference to cost effective innovations in use of materials. Preference will also be given to cost effective innovations requiring minimal or no chemicals and where chemicals are required for cleaning, they can be disposed of safely and easily without damaging building systems or waterways.

Appendix 2:

Environmental Code of Practice

Supporting and Explanatory Material

The following material is not part of the Code of Practice but is intended to provide background material for those involved with implementing elements of the Code.

As well as achieving better environmental outcomes, following the Code of Practice is likely to provide economic benefits in the form of reduced vehicle costs, and in the case of commercial premises, higher rental incomes and better property values.

Should it be found to be manifestly unsuitable in a particular situation, the Code also provides mechanisms for applying for permission to not follow the Code.

1. Vehicles

Traditionally, Diocesan vehicles have been purchased primarily on the basis of past practice and financial cost. In some instances this has inadvertently led to the purchase of large, less fuel efficient vehicles which have not ideally suited the intended purpose as well as having a range of negative social and environmental impacts.

With growing awareness of the impacts that modern transport is having on our environment and communities, non-financial considerations of vehicle purchases are becoming more and more important.

The Diocese is committed to the development of a sustainable vehicle purchasing policy which better balances economic, environmental and social considerations. By adopting a sustainable vehicle purchasing policy there is a real opportunity for the Diocese to make significant progress towards sustainability and at the same time show strong leadership in this area.

In the medium term the Diocese should aim to have the most economically, environmentally and socially responsible vehicle fleet of any comparable organisation.

The Policy

The policy requires purchasers to select a vehicle that achieves a Greenhouse Rating of 7 or above from the *Green Vehicle Guide*, unless approval is obtained from the relevant governing body to purchase an alternative.

This approach will encourage purchasers to firstly consider whether a more fuel and greenhouse efficient vehicle will suit their needs. The policy is sufficiently flexible to allow purchasers to select an alternative vehicle that better suits their needs, by obtaining approval from their governing body to purchase an alternative. For instance a purchaser's specific requirements may dictate the purchase of a large high occupancy vehicle or a vehicle for off-road use or to move heavy loads.

Practicalities

An underlying consideration must be that vehicles 'fit the purpose'. For example, will the vehicle be used mainly for: parish business and run about transport (in which case a small car would suffice)? to transport passengers (medium sized car)? tow heavy loads (larger car)? be used frequently on unsealed roads (medium to large vehicle)? does the user have particular safety requirements? These factors should dictate the general nature of the vehicle. However, within these broad vehicle classes a number of vehicles that achieve a greenhouse rating of 7 or better are available.

Within this 'fit for purpose' framework, purchasing a vehicle on a sustainable basis requires a range of economic, environmental and social considerations to be weighed and balanced. In many instances this balance will be best achieved by opting for the most fuel efficient model in the required class.

Support

The Registry offers a range of support mechanisms to assist vehicle purchasers.

For instance, the Registry will provide purchasers with access to the very best pricing for a range of highly fuel and greenhouse efficient vehicles, trade-in valuations, dealer discounts, specials on run-out models, and possible finance packaging. The Registry is also able facilitate competitive vehicle insurance rates through the Anglican National Insurance Programme.

To assist purchasers, the Registry will also compile a list of vehicles which meet a greenhouse rating of 7 or better from which the Diocese are encouraged to purchase. The list will be compiled using the most current information available from authoritative sources relating to vehicle emission levels, fuel consumption etc and recommendations provided as to the best performers in relation to these criteria.

Considerations

The economic, environmental and social considerations include:

- purchase or lease price, depreciation, interest, operating and maintenance costs (fuel, registration, insurance), resale or residual value
- greenhouse emissions, air quality, resource use and embodied energy
- health, safety and the public's perception of vehicle type and use

The following information provides a guide to assist purchasers in balancing these competing considerations.

Economic considerations

There are likely to be significant financial savings resulting from the purchase of more fuel and greenhouse efficient vehicles. For example, The NRMA estimates an average saving of around \$5,000 per annum can be achieved by opting for a small vehicle over a large one (see further below).

Economic considerations should be based on 'whole of life costs' rather than simply the initial purchase price. Minimising the economic cost of diocesan vehicles will depend on a range of factors.

Purchase or lease price

The decision to purchase or lease a vehicle requires consideration of a number of factors including fleet discounts or special deals, tax incentives, expected length of ownership and depreciation or resale value. In comparing two vehicles, an appropriate interest rate should also be applied to the difference in price to take account of the 'opportunity cost' of the alternative outlays.

As noted above, through the Registry, purchasers have access to the very best pricing for fuel and greenhouse efficient vehicles, trade-in valuations, dealer discounts, specials on run-out models, and finance packaging.

Resale

value

Higher fuel prices are impacting car resale markets, with efficient vehicles typically retaining higher resale values compared to larger vehicles. Recent Registry analysis shows that buying a 7.5 greenhouse rating vehicle (5.0 litres/100km) and reselling at 20–25,000 km, will return 75 to 85% of its original purchase price. By comparison, a larger 6 cylinder vehicle is currently reselling for around 50–60% of its original purchase price at 20–25,000 km. In financial terms this equates to a saving of between \$5,000–8,000 by purchasing a more fuel and greenhouse efficient vehicle. The financial benefits of fuel efficient vehicles are illustrated in the following example.

Comparative Resale Example

Fuel intensive model

The "list price" of a 6 cylinder 4.0L petrol powered vehicle, with a greenhouse rating of 5 and fuel consumption of 11.0 litres/100km, is \$37,500. Through special procurement arrangements available through the Registry, a parish can purchase a vehicle at a 20% fleet discount rate, so the actual purchase price is \$30,000. The trade-in value at 20–25,000km will be \$18,750 to \$20,000. At trade-in or resale the Parish has lost around \$10,000–11,250.

List price:	\$37,500
Less discount rate (20%):	-\$7,500
Discounted Purchase Price:	\$30,000
Trade-in or resale value at 20–25,000 km:	\$18,750 – \$20,000
Capital loss:	(\$10,000 – \$11,250)

Fuel efficient model

The "list price" of a 4 cylinder 2.0L diesel powered vehicle, with a greenhouse rating of 7.5 and fuel consumption of 5.0 litres/100km, is \$31,627. Through special procurement arrangements available through the Registry, a parish purchases a vehicle at a 10% fleet discount rate* so the actual purchase price is \$28,464. The trade-in value at 20–25,000 will be 75 to 80% of \$31,627 (\$23,720 to \$25,302). In this example the Parish is \$5,000–8,000 better off than in the fuel intensive example.

List price:	\$31,627
Less discount rate (10%):	-\$ 3,163
Discounted Purchase Price:	\$28,464
Trade-in or resale value at 20–25,000 km:	\$23,720 – \$25,302
Capital loss:	(\$3,162 – 4,744)

* Based upon the purchase of VW Golf. Australian Assembled and Manufactured vehicles attract a higher Fleet Discount Rates up to 20%.

Add to this the lower capital cost and around 40% lower operating cost.

Operating costs

In addition to a vehicle's capital cost, its ongoing operating costs, such as fuel, maintenance, registration and insurance, all impact on the overall cost of the vehicle. Typically, more fuel and greenhouse efficient vehicles have lower operating costs than larger, less efficient vehicles. According to figures produced by the NRMA the annual operating costs of vehicles is largely a function of size. NRMA's average annual operating costs⁴ for 2007 are:

- **\$7,478 for light cars** (range \$6,215– 12,251);⁵
- **\$9,079 for small cars** (range \$7,280–16,656);⁶
- **\$12,329 for medium cars** (range \$9,537–18,687);⁷
- **\$13,830 for large cars** (range \$10,481– 20,462);⁸
- **\$13,795 for people movers** (range \$11,308–18,302).

Four-wheel-drives typically cost around \$2,500 per annum more to operate than a similar sized on-road vehicle.

As fuel prices increase the financial savings of owning a smaller vehicle also increase. Similarly, financial savings will result when a greenhouse emissions trading system is introduced in 2010.

Fuel prices

The rising price of fuel is making ongoing operating costs a far more important economic consideration in selecting a vehicle. Broadly speaking, fuel consumption will depend on engine size, distance travelled and the type of travel (city or highway).

The fuel cost for a vehicle that travels 15 000 km per annum can range from \$2400 (for larger vehicles, eg Holden Commodore or Ford Falcon) to \$1500 (for small vehicles, eg Toyota Corolla) to \$1000 (for hybrid or diesel vehicles). These figures are included in the operating costs listed above.

As fuel prices increase the cost of operation will increase. For every 10c rise in petrol prices the annual operating cost rise by around \$100 for light vehicles, around \$150–160 for small to medium vehicles and around \$200 for large vehicles.

Link: Fuel consumption guide: www.greenvehicleguide.gov.au

⁴ These estimates are based on private vehicle travelling the average distance of 15,000 kilometres per annum over 5 years. Operating costs include depreciation and interest, registration and insurance, fuel use, maintenance and repairs. The following link from NRMA motoring and services provides over 500 vehicles in eight categories: www.mynrma.com.au/cps/rde/xchg/mynrma/hs.xsl/Operating_Costs.htm

⁵ eg Ford Feista, Holden Barina, Honda Jazz, Hyundai Getz and Accent, Kia Rio, Mazda Neo, Mitsubishi Colt, Suzuki Swift, Toyota Yaris and Prius, VW Polo

⁶ eg Ford Focus, Holden Astra, Holden Viva and Astra, Honda Civic, Hyundai Elantra, Mazda Neo, Mitsubishi Lancer, Nissan Tiida, Subaru Impreza, Toyota Corolla, VW Golf

⁷ eg Holden Vectra, Honda Accord, Hyundai Sonata, Mazda 6, Subaru Liberty, Toyota Camry

⁸ eg Ford Falcon, Fairmont, Territory, Holden Berlina, Calais, Commodore, Hyundai Grandeur, Mitsubishi 380, Toyota Aurion

Minimising fuel consumption

There are many simple and practical ways to change driver behaviour and practices which will minimise fuel consumption:

- Minimise your vehicle use for example use public transport when possible and avoid short car trips (walk, cycle or combine trips)
- Keep car properly serviced
- Tyres correctly inflated
- Drive smoothly – both when accelerating and decelerating
- Drive at moderate speeds – cars use 25% more fuel at 110 km/h than at 90 km/h
- Don't leave the engine idling for long periods – turn it off
- Remove excess weight from car (50kg equates to 2% extra fuel) and minimise aerodynamic drag like roof racks
- Use air conditioner sparingly (air conditioners can use about 10% extra fuel when operating. However, at speeds of over 80 km/h, use of air conditioning is better for fuel consumption than an open window.)
- Put your car in Neutral when stationary for prolonged periods⁹

Link: Save money on your fuel costs: www.greenhouse.gov.au/fuelguide/tips.html

Insurance

Often insuring larger, more powerful vehicles is more costly than for smaller vehicles. The Registry facilitates competitive vehicle insurance rates through the Anglican National Insurance Programme. Quotes can also be obtained from any of the major insurance companies..

Registration

In both the ACT and NSW registration fees for larger, heavier vehicles are higher than for smaller, lighter vehicles (in the order of \$100–150 per annum).

Links

ACT: www.rego.act.gov.au/registrations/regofee.htm

NSW: www.rta.nsw.gov.au/registration/registrationfees/index.html

Environmental considerations

Vehicle type

In general, opting for a smaller, more fuel-efficient vehicle that fits the purpose will lower the overall environmental impacts of the purchase.

There are also a number of next generation vehicles on the market which use a hybrid (petrol-electric) engine and regenerative brakes to maximise fuel efficiency and therefore environmental impact. The growing demand and new technologies associate with these vehicles means that they sell at a premium price.

⁹ NRMA advise that: 'although we are not aware of any tests in this regard we believe that in the modern fuel injected, electronically managed engine the fuel consumption would be slightly higher in 'Drive' as the operation of the torque converter when in gear places a load on the engine.'

Fuel type

The type of fuel used influences the environmental impacts of a vehicle. Higher octane fuels tend to provide greater fuel efficiency and therefore better environmental performance. BP's Ultimate™ fuel (a high octane fuel) is 100% greenhouse offset which means that BP has invested in a range of abatement projects equal to the emissions produced in its consumption.

Diesel vehicles typically outperform their petrol counterparts in greenhouse terms by around 15–20%. However they produce more air pollutants than petrol models which is an issue particularly in urban areas. Diesel fuel is generally more expensive than unleaded, currently by around 20c/litre (or around 14per cent).

Liquid Petroleum Gas (LPG) has around the same greenhouse emissions as a diesel vehicle and reduced air pollutants. The Federal Government is offering grants of \$2,000 for LPG conversions and \$1,000 for new vehicles with an LPG unit fitted (www.ausindustry.gov.au/content/azindex.cfm?Keyword=lpg%20vehicle%20scheme).

Driving practises

The way a vehicle is driven will also influence its environmental performance (see minimising fuel consumption above).

Greenhouse

Greenhouse emissions from passenger vehicles account for around 60% of all road transport emissions and around 7% of national emissions. Because smaller vehicles use less fuel they emit around half the greenhouse gas emission of larger vehicles. The Green Vehicle Guide (www.greenvehicleguide.gov.au) provides a comprehensive listing of the greenhouse emissions of new passenger vehicles sold in Australia.

Organisations such as Greenfleet (www.greenfleet.com.au) allow a vehicle's greenhouse emissions to be fully offset through tree planting. Greenfleet is a non-profit organisation. Its program provides a simple way to reduce your car's impact on the environment. For \$40 (tax deductible), Greenfleet will plant 17 native trees on your behalf. These trees will absorb the greenhouse gases that your car produces in one year (based on 4.3 tonnes of CO₂ for the average car).

Air quality

Transport emissions are the major contributor to urban air pollution. Air quality emissions such as carbon monoxide, nitrogen oxides, particulate matter, volatile organic compounds and benzene are higher for larger vehicles. These pollutants can contribute to urban air quality problems, for example photochemical smog, as well as adversely affect human health and the health of other living organisms (see below). Typically smaller vehicles have improved air quality emissions over larger vehicles.

Resource use

A car is made out of many different kinds of materials, such as metals, plastics, and rubber. Cars greatly vary in size, and therefore in mass. A car's mass may vary in the range of 1,000–2,000 kg. A typical car may require more than 770 kilograms of steel, 180 kilograms of iron, 110 kilograms of plastics, 80 kilograms of aluminium, and 60 kilograms of rubber. Between 5–10% of a car's overall consumption of energy and emissions of greenhouse gases happens when the car is manufactured. Obviously, large cars consume more of these finite resources in their manufacture.

Social considerations

Safety

Vehicle safety is a major social consideration when purchasing a vehicle. The NRMA and RACV review new models including a safety rating (www.mynrma.com.au/cps/rde/xchg/SID-3F5768EC-0D5F46E9/mynrma/hs.xsl/ancap.htm# and www.racv.com.au/wps/wcm/connect/Internet/Primary/my+car/car+safety/new+car+safety/). The NRMA also produces a safety guide for used cars made up until 2004 (www.mynrma.com.au/used_safety_ratings.asp).

Health issues

Urban air pollution, which is largely the result of motor vehicle emissions, leads to a range of serious health effects. Air pollution has negative health effects, especially for vulnerable people, including those with allergic and respiratory conditions, such as asthma, hay fever and sinusitis, and respiratory and lung conditions commonly associated with the elderly. Research suggests that certain air pollutants (e.g. benzene) are carcinogenic. The health impacts of transport emissions in Australian capital cities have been estimated as costing around \$3.3 billion per year.

Perceptions

The perception created by Diocesan vehicle use is an important consideration for an organisation committed to promoting social justice issues. The use of large, powerful vehicles can give the impression amongst parishioners and the wider community that church funds are being inappropriately used. More modestly sized cars that fit their purpose should improve this perception.

2. Buildings

What is a green building?

The Organisation for Economic Co-operation and Development OECD defines Green Buildings as those buildings that have minimum adverse impacts on the built and natural environment, in terms of the buildings themselves, their immediate surroundings and the broader regional and global setting.

A Green Building is designed to minimise the total environmental impact of its materials, construction, operation and deconstruction while maximising opportunities for indoor environmental quality and performance.

A Green Building will save money, reduce waste, increase worker productivity and create healthier environments where people live and work.

A Green Building incorporates design, construction and operational practices that significantly reduce or eliminate the negative impact of buildings on the environment and occupants. It includes strategies for addressing:

- energy efficiency
- greenhouse gas emission abatement
- water conservation
- waste avoidance, reuse and recycling
- pollution prevention - noise, water, air, soil & light
- enhanced biodiversity

- reduced natural resource consumption
- productive and healthier environments
- useable buildings
- social amenity
- transparent reporting

The benefits of a Green Building are:

- lower development control costs
- improved risk mitigation and management
- higher tenant retention
- lower renovation costs
- lower overheads
- higher returns
- more flexible space planning
- more productive and healthier environments
- access to financial incentives and tax credits
- a baseline measure to earn carbon credits
- lower insurance costs
- increased interest by Ethical Investment Funds
- a better industry image

Costs/Benefits – an example:

The average premium for the construction of Green Star 6 (World Leadership) (equiv to Level 3 Gold US) is slightly less than 2% or \$33 more per m² based upon m² rate of \$1500.00. This rate is the national average for a school for example. A residence is a similar figure and a church is \$1800 per m². These rates will vary state to state and therefore the figures represented are averages.

The % premium has been determined by a study undertaken by Davis Langdon across some 100 school sites in the US and the indications are that this is a reducing premium which will go negative within the next 2 years or less.

Operation Cost Savings and Consequential Cost Savings.

	\$\$\$ per m ²
Energy	99
Emissions	11
Water and waste water	11
Increased Earnings	539
Asthma Reduction	33
Cold & Flu reduction	55
Teacher retention	44
Employment impact	22

Total Savings	814
Cost of Greening	(33)

Net Financial Benefit 781

It should be noted that not all of these benefits will accrue to the school but also to students, parents and the greater community. Therefore the proposed policy tangibly embraces our social obligations as well as providing a direct benefit to the school and the school population: similar savings would be expected for any type of diocesan building..

Taken from *The Dollars and Sense of Green Buildings 2008*
Green Building Council of Australia Publication

Ways to improve present buildings

Ministry units and diocesan agencies should consider the following:

4. Easily achieved energy reduction measures which can usually be done without significant modification to building structures:
 - a. Utilise lower wattage lighting which provides an equivalent level of illumination to existing incandescent lighting, such as fluorescent or LED lighting systems.
 - b. Install weatherstripping or seals around doors and windows to minimise infiltration of outside air.
 - c. Install insulation above ceilings to reduce heat loss/gain from roof cavities (minimum 150 mm fibreglass insulation batts or equivalent).
 - d. Install adjustable external shades on sun-exposed windows.
 - e. Install programmable thermostats on central heating/cooling systems (capable of separate settings for day/night and weekday/weekend).
 - f. Replace older appliances with energy efficient ones (fridges, stoves, ovens, dishwashers, etc.).
5. Energy reduction measures which may require significant modification or are more easily done in combination with minor building modifications:
 - a. Install solar hot water heating, with an inline gas or electric instantaneous heater to supplement.
 - b. Replace electric resistance heating (or older gas or heat pump systems) with high efficiency heat pumps or natural gas (heat pumps are a better option where cooling is also required).
 - c. Install light coloured, reflective roofing or high efficiency reflective roof paint to minimise solar heat gain.
 - d. Replace single pane window systems with dual glazed, low emissivity windows with air tight seals.
 - e. Insulate external walls of buildings (usually only practical where a building has siding, is being resided, or where sheeting on the inside of an external wall is being replaced).
 - f. Install heating appropriate to the building use:
 - i. Infrequent use – radiant heaters to heat the people (e.g. stone walled church)
 - ii. Frequent use, low thermal mass – convective or forced air heating/cooling with on/off or thermostatic controls (e.g. weatherboard construction house or office)
3. For issues related to Grid connected solar PV (Photovoltaic) systems contact the Registry also, see Diocese of Bathurst document '*A carbon neutral diocese*'.

3. Water

Principles

It is essential that we recognize that the choices made by individuals, communities such as churches, and by society at large regarding sustainable water use are, fundamentally, moral choices. This is especially true for Christians and this policy aims to provide a framework from which our Christian community can make informed choices toward effective actions.

Resource stewardship.

The community needs to learn to allocate its water in relation to the relative security of supply from available sources, and the relative importance of demands for the different grades of water. Most precious (secure) is water from reliable sources that is suitable for drinking. Next is previously used water: in many societies, households use rinse and washing water for gardens etc; farms use irrigation water multiple times via terraced fields and simple collection and return structures. Finally, there are insecure supplies from occasional rains which can be harvested and stored for later use. Communal long term secure stored water should be used sparingly in good times and reserved for use in bad times. Unfortunately, we have developed policies and structures that depend almost exclusively on long-term reserve storages, and have lost sight of the importance of local secure and opportunistic sources.

We need to preserve the reticulated mains supply for potable needs so that it is used only after other available sources (from grey-water and rainwater) have been used for 'fit for purpose' uses. It is too easy to simply turn on the tap for town water. We need to take more responsibility for choosing the right water for the right task and let our political masters know that this is the preferred direction of change in policy. We are then in a position to have technology make water available, rather than drawing so heavily from the natural environment

Equity & Justice.

The water sharing systems of many ancient societies had equity as central in the allocation decision. These societies recognised that the basis of most conflict and dispute was over sharing arrangements and developed elaborate systems to ensure that essential needs were met with a fair basis for water sharing.

The question of equity has only just surfaced as a social issue in the Australian water debate and the church, along with other groups in society must actively seek to find ways to establish equity as the central core in water use. Appropriate policy, standards and delivery mechanisms are central to issues of equity and justice. In cities and towns, the use of drinking-quality water for most in-house and external uses exacerbates artificial water shortages in times of drought. That is, water of drinking quality is preferred for all uses, whereas many uses should be met by grades of water other than of drinking water standard. In country areas also the sustainable use of water resources of various qualities for farming, and environmental maintenance is essential. Wastage and inefficient use of this limiting resource must be avoided. We need to establish a 'fit for purpose' portfolio of supply sources of various qualities, and to engage technology so as to optimise our use of these.

Environmental literacy

To take up our role in environmental stewardship is to become aware, interested, and then knowledgeable about the important relationships that shape the landscapes of Australia. This 'landscape literacy' is a knowledge that is vital for the survival of any society, but especially for one that wields technical muscle on a scale ours does. Revisiting and relearning this lesson is necessary if our society is to understand the problems that we face and to give context to necessary remedial action.

How many of us can name one local native plant flowering on the banks of our rivers, much less any of the myriad of insects, fungi and microorganisms found there? How many of us can say what role they fulfil or how they live? What do we understand of the

services they contribute to our well being, and what are the consequences and options when species are removed by incompatible use of resources, loss of habitat, pollution or climate change? Our first step then as Christians and as a Christian community is to be aware of our environment and more literate as to what it is and what it contributes to our well-being. In the present context understanding the role of water in establishing and maintaining the landscapes of Australia is essential.

Similar issues arise with farming. How is water used on farms? What uses can the Australian community and environment afford? Where and what are the sources of inefficiencies and how may they be ameliorated? What is the responsibility of town and city dwellers in making a difference to life 'on the farm' and how may this be achieved?

An educated and committed Christian community is essential.

4. Biodiversity

What is a "listed" species or ecosystem?

A "listed" species or ecological community is considered to be threatened with extinction under federal, state or Territory legislation. A "listed" species or community may be considered "extinct", "extinct in the wild", "critically endangered", "endangered", "vulnerable", "conservation dependant" in decreasing levels of threat. Different sets of terms are used in different jurisdictions. Commonwealth, State and Territory laws require certain actions by the managers of lands where such species/ecosystems occur.

What species do/might occur on land in the Canberra Goulburn diocese?

Grassy woodlands and native grassland communities used to be common but are now confined to small, often fragmented, areas as farming and towns have expanded. This means that church lands, for example old cemeteries or other undeveloped areas, have become some of the last refuges for these increasingly rare ecological communities. Some grassland communities in south-eastern Australia are more threatened than Australian rainforests.

Grassland communities can provide habitat to endangered wildflowers such as the silky swainson-pea and the button wrinklewort and animals like the diamond firetail, earless dragon species and the golden sunmoth.

What assistance is available?

Government agencies and community groups offer, often free, expert assistance and award grants. For example, the NSW government has conducted biological surveys of Catholic parish lands. The Friends of Grasslands group operating in ACT and NSW conduct community based surveys of grasslands using methods designed by scientists but carried out mainly by trained volunteers.

What laws protect listed species/ecosystems in Australia?

Federal: The *Environment Protection and Biodiversity Conservation Act 1999*, latest amendment 2007, currently under review. This act provides for both criminal and civil penalties.

- ACT: The *Nature Conservation Act 1980*
- NSW: The *Threatened Species Conservation Act 1995*

St Mark's Theological College and the endangered grassland ecosystem.

An example of the close cooperation possible can be seen at St Marks where the grassland is managed under an agreed plan developed with the advice of the ACT Dept of the Environment by a group of volunteers.

Further information

Building a Better relationship with Our World: A green guide for people in parishes. (copies distributed to all Parishes), or see:

<http://www.anglicansharepoint.org.au/Publib/Documents/Environment/Resources/Environment%20Handbook.pdf>