

7. ATMOSPHERE

7.1 INTRODUCTION

The atmosphere (including the air we breath) is composed of the various gases and airborne solid and liquid particles which surround the Earth and enables life as we know it to exist (EPA 1999b). It occurs as a number of distinct vertical layers:

- troposphere 0-15km in height;
- stratosphere approximately 15-50km;
- mesosphere >50km;
- thermosphere >80km; and
- exosphere.

The troposphere contains about 90% of the mass of the atmosphere and is the only layer which is highly mixed. Most internal chemical reactions and human induced emissions occur in this layer. Gases and aerosols also regularly enter the stratosphere from the troposphere.

Issues relevant to the atmosphere include atmospheric pollution, the enhanced greenhouse effect and ozone depletion. The use of energy particularly where it is derived from crude oil, coal and natural gas are major contributors to atmospheric pollution.

Air and its composite gases are essential for life along with water and food, yet mostly it is taken for granted. Whilst generally Queensland's air quality meets national air quality standards, there is great potential for air quality to deteriorate over time if human activity is not carefully managed. While no detailed air quality monitoring studies have been conducted within Noosa Shire, the air quality for the majority of time is recognised as good. Occasionally, the air quality within parts of the Shire may deteriorate as a result of cane and bushfire smoke and/or car emissions at various times.

7.2 ISSUES & PRESSURES

7.2.1 Major Air Pollutants

Air Pollution Complaints

Indicator: *Number of complaints received by Council on air pollution issues.*

There were 55 unspecified complaints to Council about air pollution between 1 July 1999 and 1 June 2000.

The following gases are the major sources of atmospheric degradation:

- Volatile organic compounds (VOCs);
- Nitrogen oxides (NO_x);
- Carbon monoxide (CO);
- Lead (Pb);
- Sulphur dioxide (SO₂);
- Carbon dioxide (CO₂);
- Methane; (CH₄)
- Ozone; (O₃)
- Odours; and

- Stratospheric Ozone Depleting Substances.

Volatile organic compounds are a range of compounds, which react with nitrogen oxides in the presence of sunlight to produce photochemical oxidants or photochemical smog as it is better known (EPA 1999b). They are emitted by motor vehicle exhausts (primarily passenger vehicles), industry (solvents, paints, jet ski motors, service stations etc), burning of sugar cane and bushfires.

Nitrogen oxides (nitric oxide, nitrogen dioxide) are formed when air is heated to high temperatures (EPA 1999a). They are produced from motor vehicle engines (nearly 75% of the total), coal fired power stations and other industries, by burning sugar cane and bushfires, by gas stoves, gas or wood heaters and tobacco smoke. Nitric oxide, a relatively harmless gas, oxidises to form nitrogen dioxide which is highly corrosive. Nitrogen dioxide can damage vegetation, reduce visibility and make people prone to respiratory infections and asthma attacks.

Carbon monoxide arises from the incomplete combustion of carbon-based fuel. Elevated levels in the body can reduce the amount of oxygen carried in the blood. Motor vehicles are the major source of this gas (86% in south-east Queensland), but the burning of vegetation (sugar cane, bushfires etc) is also a source.

Lead in high concentrations can cause chronic kidney disease, chronic anaemia, increased blood pressure and neural disorders. At low levels it can impair neurological, intellectual and psychological functioning in children (EPA 1999b). It is mostly absorbed by inhaling air borne particles containing lead. The major source is motor vehicle emissions using leaded fuel, with a minor component from industry. The introduction of unleaded petrol has greatly reduced lead emissions to the atmosphere (EPA 1999a).

Sulphur dioxide can irritate the respiratory tract, causing coughs and mucous secretions, aggravating respiratory ailments (asthma etc) and increasing the likelihood of respiratory tract infections. Coal-fired power stations and oil refineries and vehicle emissions are the major sources in south-east Queensland.

Particles suspended in the air and can be solid or liquid. They cause corrosion of many materials, provide a substrate for other air pollutants, can increase rates of asthma, bronchitis and emphysema. Particles with a diameter less than 10 microns are believed to pose the greatest health risk. Major sources are industry (particularly coal mining), motor vehicle emissions and burning of vegetation.

Carbon dioxide is a significant greenhouse gas along with methane. It comes from a variety of natural and man-made sources – mainly the burning of vegetation and fossil fuels. Sources of methane include agriculture, waste disposal and coal mining.

Tropospheric ozone is the major gaseous pollutant present in urban airsheds. Ozone is a highly unstable form of oxygen containing three oxygen molecules (O_3). When it is formed unnaturally in the lower atmosphere (troposphere) as a result of human activities, its highly unstable and reactive nature make it harmful to all plant and animal cells. This is unlike stratospheric ozone which is an essential component of the atmosphere which protects life on earth from incoming solar radiation. Ozone irritates mucous membranes in the eyes, nose, throat and lungs. It also increases airway reactivity and decreases lung function in healthy people, especially during exercise (EPA 1999a).

Odours are usually localised in their effect and although offensive, are not in themselves a major health risk. Odours may emanate from a variety of different sources such as sewage treatment plants, industry and waste disposal facilities.

7.2.2 Stratospheric Ozone Depletion

Greenhouse Gas Emissions

Indicator: *Volume of CO₂ equivalent emissions caused as a result of Council activities.*

Since the early 1980s there has been evidence of depletion of stratospheric ozone in the form of a "hole" with up to 60 percent less ozone than average over Antarctica (EPA 1999b). Reduced ozone levels extend over southern Australia. This hole has been the result of the release by humans of a variety of chemicals, into the atmosphere, termed generally as Stratospheric ozone depleting substances (ODS).

Stratospheric ODS including chlorofluorocarbons (CFCs), hydrochlorofluorocarbons (HCFCs) and halocarbons (carbon compounds containing bromine, chlorine, fluorine or iodine), react with sunlight on reaching the upper atmosphere (or stratosphere) to break down the layer of ozone in the stratosphere which filters the ultraviolet (UV) radiation from the sun. Depletion of the ozone layer could lead to climatic and environmental change and have detrimental effects on human health (such as increases in skin cancer). CFCs have been used as refrigerants, aerosol propellants, foam-blowing agents and solvents. The manufacture and use of CFCs and ozone depleting halocarbons is declining though large quantities of CFCs remain in older refrigerators and air conditioners. Atmospheric concentrations of HCFCs are however increasing (EPA 1999b; ICLEC undated a).

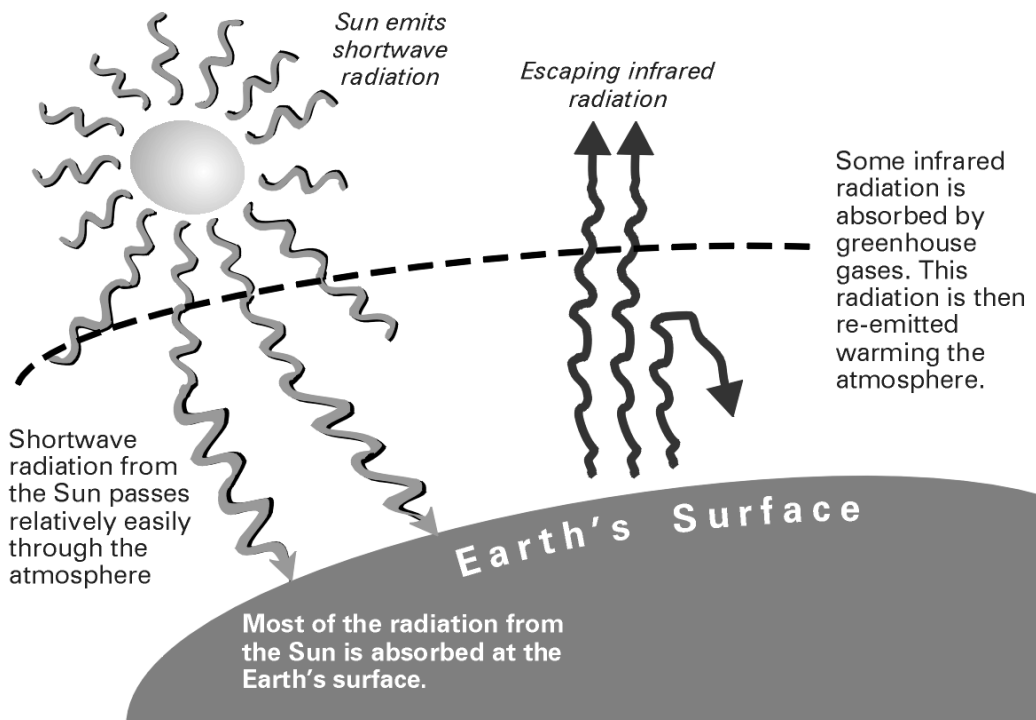
7.2.3 The Greenhouse Effect

Indicator: Number of Council initiatives to reduce greenhouse gas emissions within Shire (based on recommended actions by ICLEI)

The greenhouse effect is a natural phenomenon that traps heat in the Earth's lower atmosphere (troposphere) near the earth's surface. The greenhouse effect makes the earth about 33°C warmer than would otherwise be expected at its distance from the sun. A portion of the heat flowing back toward space from the earth's surface is absorbed by water vapour, carbon dioxide, ozone and several other gases in the atmosphere. It has been predicted that if the atmospheric concentrations of these greenhouse gases rise, so too will the average temperature of the lower atmosphere (Miller 1994).

The ozone layer is a layer of gaseous ozone in the stratosphere which absorbs ultra-violet radiation that is harmful to human health and the environment. The atmospheric blanket of gases which allow light energy from the sun to reach the Earth's surface where it is converted to heat energy is known as the 'natural greenhouse effect' (refer diagram below). Without this, life on earth as we know it would not exist (AGO 1997).

Figure 7.1 Greenhouse Effect



Greenhouse Gases

While the greenhouse effect is a natural process, it has been reported that human activities such as the burning of fossil fuels, land clearing and agriculture are increasing the atmospheric concentrations of greenhouse gases and aerosols. Aerosols – microscopic airborne particles – tend to cool the atmosphere. Together, greenhouse gases and aerosols affect climate-related parameters such as temperature, precipitation and sea level. Many greenhouse gases remain in the atmosphere for many years, whereas aerosols are very short-lived (EPA 1999b).

In 1996, Australia's net greenhouse gas emissions totalled the equivalent of 419 million tonnes (Mt) of carbon dioxide. On a per capita basis, Australia's emissions are the third largest in the world. Australia's rate of emissions growth is one of the highest in the world, with emissions projected to increase by 28 percent over 1990 levels by the Kyoto target date of 2008 unless significant abatement action is taken (EPA 1999b).

The exchange of carbon between the atmosphere and the land and oceans (the carbon cycle) can be described in terms of sources (emissions) and sinks (removals). Natural sources of carbon dioxide include the decay and respiration of vegetation, while sinks include the uptake of atmospheric carbon by plant photosynthesis and absorption by oceans. Natural cycles have kept the levels of greenhouse gases constant in the atmosphere prior to the Industrial Revolution. Since then, human activities have increased greenhouse gas emissions resulting in increased concentrations of greenhouse gases in the atmosphere with a resultant potential for global warming – the enhanced greenhouse effect.

Greenhouse gases in the Earth's lower atmosphere (troposphere) are reported to be the cause of the enhanced greenhouse effect. Small amounts of carbon dioxide and water vapor combined with trace amounts of ozone, methane, nitrous oxide, chloroflourocarbons and other gases in the troposphere play a key role in determining Earth's average temperatures and thus, its climatic variations.

These gases, known as greenhouse gases, allow light, infrared radiation and some ultraviolet radiation from the sun to pass through the troposphere in short-wave radiation. The earth's surface absorbs much of this solar energy and converts it to heat, which then rises into the troposphere. Some of this heat (known as long-wave radiation) escapes into space and some is absorbed by molecules of greenhouses gases, warming the surrounding air.

The major human generated contributors to greenhouse gas emissions are carbon dioxide, methane and nitrous oxide. Queensland's emissions in 1995 were 83.5 million tonnes CO₂ equivalent (approximately 21% of Australia's emissions). Queensland per capita emissions are higher than those of other States and Territories due to the size of the mining, minerals, processing and agricultural sectors (EPA 1999b).

Noosa Council Greenhouse Gas Emissions Case Study

Based on Noosa Council's consumption of electricity, gas, petrol and diesel between July 1999 and June 2000 the estimated CO₂ equivalent emissions were 8,174 tonnes.

The table below illustrates the CO₂ equivalent emissions for the different energy types.

Energy Type	Estimated CO ₂ Equivalent Emissions
• Electricity	6,190 tonnes
• Gas	32 tonnes
• Petrol	693 tonnes
• Diesel	1,258 tonnes
Total	8,174 tonnes

The potential impacts of enhanced greenhouse effect on south-east Queensland are predicted to be (CSIRO 2000):

- the number of days with a maximum of 35°C or greater will increase by 70% on current levels by 2100 increasing the incidence of heat stress in the population;
- average maxima will increase from 28°C in 2000 to 30°C in 2080;
- an increased risk of wildfires;
- increased evaporation from water storages (dams etc), and thus the likelihood of water shortages during certain periods;
- extreme daily rainfall intensity may increase by up to 10% by 2050 but overall average rainfall may decrease and droughts will last for longer periods;
- cyclones may become up to 20% more intense, but will not necessarily be more frequent;
- low lying coastal developments may be more prone to damage from a combination of sea level rises and increases in extreme weather events;
- food and waterborne diseases are likely to become more common; and
- the incidence of dengue fever, Ross River fever, Japanese and Australian encephalitis to increase (CSIRO 1998).

7.2.4 Energy Usage

Indicator: *Amount of electricity used from Noosaville substation.*

Energy use is often described in terms of “primary energy sources” (eg crude oil, natural gas and sunlight) and the use of “end energy sources” (eg petrol and electricity). Energy providers such as power stations and oil refineries convert primary energy sources into end energy sources and sell this energy product to domestic and business users.

All south-east Queensland’s energy sources have an environmental cost attached to their generation or use. The majority of energy used in south-east Queensland in development is non-renewable.

The burning of coal, which is the primary source (over 97%) of fuel used to generate electricity in Queensland (EPA 1999b), results in the emission of noxious and greenhouse gases, as does the burning of petrol and gas. Hydroelectric power requires the construction of dams across rivers which result in changes to the flow patterns of the river, water chemistry (temperature, dissolved oxygen) and often result in the destruction of areas of native vegetation upstream of the dam. They also act as a physical barrier to the movement and migration of aquatic organisms (eg fish) up and downstream.

The main reticulated energy source in Noosa Shire is mains electricity. In the financial year 1998/99, approximately 39,190 megawatt hours of electricity was consumed in Noosa Shire (based on 95% of output from Noosaville substation, Whish-Wilson pers comm.).

There is no reticulated (mains) gas in Noosa Shire. Liquid petroleum gas is supplied in bottles by truck by a variety of suppliers so there are no accurate figures for gas usage in Noosa Shire.

The volume of petroleum used by stationary energy sources (industry) and mobile energy sources (cars, trucks, road transport, boats) is not known for Noosa Shire due to the difficulty in obtaining accurate information from industry and suppliers.

Demand for Energy

Modern human life involves the use of energy in varying degrees, including growing, packaging and preparing food; travelling; mining; manufacturing and industry; residential living; service industries; recreation and waste collection. The energy demand within Noosa Shire is expected to increase in future years due to:

- population and tourist growth and development;

- increase in energy use for our community standard of living (including household appliances, air conditioning, computers);
- increases in the energy intensity of infrastructure services;
- demand for individual mobility;
- continued pressure for economic growth; and
- increase in commercial and industrial growth.

Energy Conservation & Alternative Sources

At present there are no energy conservation programs run specifically by Noosa Council. Energex's "Energy Institute" has a web page, which gives consumers information on energy efficient household appliances, and most new appliances are marked with their energy rating, from one to six stars. The more stars, the more energy efficient the appliance is.

Noosa Council is not presently coordinating any alternative energy projects or incentive programs. However, solar hot water systems are widely available in south-east Queensland. In 1999 4.8% of households utilised this source of water heating (EPA 1999b).

The Council's landfill site is considered to be too small for extraction of methane.

As an example, Government, industry and individuals at all levels can contribute to conserving energy and minimising the environmental impact of energy use by:

- purchasing environmentally friendly goods (ie reduced chemical use, minimal packaging, recycled materials, long lasting);
- reuse of materials (ie timber, glass, concrete);
- recycling in the work place and home (ie paper, glass, plastic etc);
- use of public transport, bike, walk or car pool;
- purchasing small car or motor bike;
- use of LP gas in car;
- use of renewable energy (solar hot water, PV power);
- avoiding driving in peak hour traffic;
- construction of energy efficient buildings;
- installing a rainwater tank;
- composting food scraps;
- using water saving shower roses, dual toilet flushes and aerating taps; and
- use of energy efficient appliances.

7.3 LEGISLATION & POLICIES

Air quality is controlled under the *Environmental Protection Act 1994* which identifies activities that have the potential to cause environmental harm and requires that such activities not be carried out without an environmental authority from the appropriate administering authority.

State Government departments and local governments, including Noosa Council, report annually on environmental authorities issued, cancelled, suspended and refused for environmentally relevant activities (ERAs). The Act covers ozone-depleting substances including refrigerants, controlled substances such as solvents and dry cleaning equipment, plastic foam manufacture, and halon and other fire-extinguishing systems. It also sets out conditions on buying, selling, handling, use and reclaiming of controlled substances, and lists ODS (EPA 1999a).

The Environmental Protection (Air) Policy 1997 (EPP Air) identifies environmental values to be enhanced or protected, specifies air quality indicators and goals to protect environmental values, and provides a framework for making “consistent and fair” decisions about managing air quality (EPA 1999a). It does not apply to indoor or workplace environments.

The EPP Air is used by Noosa Council as a guideline for the planning and supervision of ERAs under its jurisdiction.

The South-East Queensland Regional Air Quality Strategy (SEQRAQs), which includes Noosa Shire, addresses those aspects of air quality which have regionally significant effects on human health, ecological sustainability and amenity (including visibility). The strategy recommends actions to tackle air quality problems relevant to south-east Queensland. It does not cover state-wide or nationally relevant actions. The Strategy is intended to complement other regional initiatives including the SEQ 2001 Regional Framework for Growth Management, the Integrated Regional Transport Plan (IRTP) for south-east Queensland and the South-East Queensland Economic Development Study.

Backyard incineration of waste is not permitted by Noosa Council in urban areas and a permit from the Fire Service is required for burning in rural areas.

7.4 MONITORING

The EPA undertakes monitoring of air quality in various places in south-east Queensland, however there are no monitoring stations in or near Noosa Shire so specific data for Noosa is not available. The following parameters are used to measure air quality:

- VOCs, NO_x, TSP (Total Suspended Particulates: particles with an equivalent aerodynamic diameter of less than 50, 10 and 2.5microns), SO₂, CO, lead and Ozone.

Ozone is used as a surrogate for measuring the concentration of photochemical pollution within the airshed.

International Council for Local Environmental Initiatives Case Study

The International Council for Local Environmental Initiatives (ICLEI) is a membership organisation of local governments and their associations, which is dedicated to building and supporting a worldwide movement of local governments to achieve global environmental improvement through local initiatives. In collaboration with the Australian Greenhouse Office (AGO) it is running the Cities for Climate Protection program (CCP) to empower local governments to reduce greenhouse gas emissions. Many of these initiatives will also help to reduce the emissions of other air pollutants.

The initiatives are also compatible with the strategy priorities for the South-East Queensland Regional Air Quality Strategy (SEQRAQS) which are:

- Reduction of photochemical smog by reducing emissions of nitrogen oxides and Volatile Organic Compounds;
- Reduction in particle pollution levels and achieving a better understanding of the chemical composition, size and source of particles;
- Improved understanding of the sources and impact of trace air pollutants, particularly those that are hazardous, through research and monitoring; and
- Controlling and monitoring sulphur dioxide and carbon monoxide emissions to avoid long term problems.

Table 7.1 below sets out relevant actions recommended by ICLEI and sets out initiatives which Noosa Council has in place.

Table 7.1 Actions Recommended by International Council for Local Environmental Initiatives

Action	Current Noosa Council Initiatives/Comment
<p>General</p> <ul style="list-style-type: none"> • Quantify the level of greenhouse gas emissions of both Council and community activities and prepare a forecast of emissions growth in future. • Establish an emission reduction goal (ie "Community Greenhouse Target") • Develop and adopt a Local Action Plan to reduce Shire wide greenhouse gas emissions. • Implement the Local Action Plan. • Monitor and report on the implementation of the Local Action Plan. 	<p>An estimate of greenhouse gas emissions from Council operations forms part of this SoE report.</p>
<p>Specific</p> <ul style="list-style-type: none"> • Retrofit existing Council buildings and facilities (eg pumping stations) to make them more energy efficient (eg energy efficient lighting and appliances, insulating walls and ceilings, install solar hot water systems). • Ensure existing and new equipment/appliances are adjusted to most energy efficient settings. Turn off lights, computers etc when not in use. • Set energy efficiency standards including passive solar design for all new buildings renovations and extensions in the Shire (Council offices, private dwellings, commercial and industrial premises). • Specify light colours for existing rooftops and street paving to reduce the 'heat island' effect. • Use natural gas in preference to electricity as an energy source. • Implement cogeneration/heat recovery in Council buildings where opportunities exist. • Set minimum energy efficiency standards for all purchases and bid specifications for office equipment, lighting, appliances etc. • Reduce energy use of street lights, traffic signals etc through Light Emitting Diode traffic signals, exit signs etc. Install photovoltaic – powered outdoor and emergency lighting where possible. • Replace existing lighting with energy efficient and low wattage lamps and ballast. 	<p>Changes are taking place with incandescent lighting being replaced over time.</p>

Action	Current Noosa Council Initiatives/Comment
<ul style="list-style-type: none"> • Purchase fuel efficient 4-cylinder cars for the Council fleet in preference to less efficient 6 and 8 cylinder models and LPG, electric or hybrid models in preference to petrol only models. • Convert existing petrol car fleet to Liquefied Petroleum Gas (LPG). • Encourage Council staff to drive in a fuel efficient manner. • Improve maintenance of Council vehicles for increased fuel efficiency. • Encourage the use of telecommuting, public transport, bicycling, walking and carpooling by Council officers to get to work. • Provide incentives to reduce travel by Council employees eg subsidised commuter passes, eliminate free parking, provide preferential parking for car pooling. • Maximise recycling in Council offices etc. • Provide for composting facilities within Council operations, around the canteen or kitchens. • Minimise waste production within Council operations (eg double-sided photocopying, use E-mail etc). • Use recycled materials (paper etc) in Council operations. • Compost/mulch greenwaste from Council operations, and residents. • Recover methane from landfill sites or flare if this is not feasible. • Regulate to protect solar access in residential and commercial areas. • Encourage the purchase of energy and water efficient appliances and fittings and use of insulation by residents by setting an example in Council, by education, by providing financial incentives (rebates, loans etc). • Distribute/subsidise water saving and energy saving devices to residents, industry, commerce in Shire. • Promote the planting of vegetation to reduce the "heat island" effect and for passive solar effects on buildings. • Maximise urban and residential tree plantings and retention of existing remnant vegetation to act as carbon sinks (and to conserve biodiversity). 	<p>No 8 -cylinder vehicles in car fleet.</p> <p>Public transport already operates in Noosa Shire. There are bikeways in Noosa Shire: some bike racks are provided in public areas. Showers are provided for cyclists in Council offices.</p> <p>Council already encourages recycling by residents by various means. (see Human Settlement chapter). Internal council involvement not known.</p> <p>Specific measures are encouraged by Council administration.</p> <p>Currently being done.</p> <p>Excellent program in place (see Human Settlement chapter).</p> <p>Landfill site is considered to be too small for methane recovery.</p> <p>Council standards require increased building setbacks and low rise buildings.</p> <p>Council is in initial phases of implementing a WaterWise strategy both within Council and within the broader community.</p> <p>As above.</p> <p>Landscape plans required for all development sites. Council provides direct financial support to community groups undertaking rehabilitation works and farm forestry.</p> <p>Tree planting by Council and others on public land already occurs. Tree preservation Local Laws cover 35% of Noosa Shire. A Local Law is proposed to cover Vegetation clearing across all freehold and leasehold land across the Shire. Council provides 2 free trees per annum to rate payers.</p>

Action	Current Noosa Council Initiatives/Comment
<ul style="list-style-type: none"> • Increase use of alternative transport (buses, car-pooling, bicycling, walking) through improvements in infrastructure, parking fee structures and bus fare pricing which discourage cars (particularly if occupied by 2 or less) in major centres. • Reduce the minimum parking space requirements for new construction. • Coordinate car-pooling and ridesharing in the Shire. • Encourage infill development, high density transport nodes etc where this does not conflict with protection of biodiversity. • Encourage composting by public through education and distribution of subsidised compost bins. • Collect residential recyclables and greenwaste at kerbside. • Encourage commercial recycling collection for local businesses. • Provide community recycling drop-off sites and reusable and salvageable goods exchange especially at the local landfill. • Provide financial incentives to reduce waste such as pay by volume, penalties for mixing waste etc. • Provide information on air pollution reduction, etc through Council libraries and offices. 	<p>A number of private bus companies operate within Shire and connect to neighbouring Shires and beyond. School buses also provided. Sunbus services connects to trains (Q-Rail) link, with common ticketing (Dale, pers comm.). There is a network of dedicated bikeways and shared bikeway/pedestrian paths and Council has a draft bikeways plan but this has not been ratified to date. Council is awaiting Queensland Transport bike strategy before developing its own.</p> <p>Not appropriate in Noosa until public transport is more advanced.</p> <p>Noosa Shire is already reasonably modal and the Strategic Plan indicates this will continue into the foreseeable future.</p> <p>Council program in place but take up rates at the moment are low.</p> <p>Council program in place for recyclables with 45% participation rate at present. No greenwaste collection but provision at Waste Transfer stations at no charge.</p> <p>Excellent Council program in place including reduction targets (see Human Settlements chapter).</p> <p>Facilities are already in place, and a number of innovative programs are underway (see Human Settlement chapter).</p> <p>Tip fee structure reflects this (see Human Settlement chapter).</p> <p>No program in place at present but Noosa Library would like to be involved (Armstrong pers comm.).</p>

7.5 SUMMARY REPORT CARD & INDICATORS

7.5.1 Summary Report Card

OVERALL ATMOSPHERE REPORT CARD			
Condition Assessment	Reasons	Pressures Assessment	Reasons
A	<ul style="list-style-type: none"> • Complaints to Council regarding air pollution. • Small number of industries which have the potential to pollute the air shed. • Remnant vegetation covers 40,456ha of the Shire which represents approximately 50% of the original vegetation cover. • Alternative transport options available. 	Moderate	<ul style="list-style-type: none"> • Increase in vehicular usage. • Increase in industries within the general air shed. • Increase in energy consumption. • Increase in tourism and development. • Increase in frequency of cane and bush fires.

			<ul style="list-style-type: none"> • Increase in localised road congestion at Noosa Heads.
<p>Key pressures which are the targets for action are:</p> <p>*** Motor vehicle usage</p> <p>*** Increase in energy consumption</p> <p>** Industry air emissions</p> <p>Level of Priority and Urgency</p> <p>*** highest ** * lowest</p> <p>Implications:</p> <p>While the current air quality within Noosa is good, existing and future development have the potential to decrease the air quality unless future activities are managed appropriately. To ensure the existing air quality is maintained or improved Council and the community should adopt appropriate strategies/actions to reduce air emissions.</p> <p>The energy demand within Noosa Shire is expected to increase in future years. Additional energy consumption has the potential to increase greenhouse gas emissions. The responsibility for minimising energy use and greenhouse gas emissions lies with all levels of Government and the community.</p>			

7.5.2 Indicators

Future Monitoring and Indicators

- Number of Environmental Approvals issued;
- Odour, smoke and dust complaints received by Council;
- Number of permits for burning of sugar cane;
- Greenhouse gas emission estimate for Council and community activities;
- Public transport patronage;
- Length of bikeway; and
- Volume of methane released from Council's landfills and sewage treatment plants.

Table 7.2 Summary of Atmosphere Indicators

Indicator	Indicator Type <i>Pressure, Condition, Response</i>	Information Status
Number of complaints to Council about air pollution.	R	55 (1999/2000)
Number of Council initiatives to reduce greenhouse gas emissions within the Shire (based on recommended actions by ICLEI).	R	22 of 41
Estimate of CO ₂ equivalent emissions caused as a result of Council activities (electricity, gas, diesel and petrol usage).	P	8,174 tonnes
Amount of electricity used from Noosaville substation.	C	39,190 megawatt hours (1998/99)
Amount of renewable energy used.	R	Not available

7.6 TOWARD ESD: ACTION PLAN FOR ATMOSPHERE

While it is recognised that Noosa Shire's current air quality is good, it is located on the edge of the Brisbane airshed which is recognised as having significant potential to develop air quality problems. As the general Brisbane airshed will be under considerable pressure in the future from population growth and increasing travel demand, Noosa Shire needs to acknowledge its context in the regional airshed and be proactive in maintaining its current air quality.

The local and global climate change impacts from human-induced greenhouse gas emissions are now well understood and scientifically verified. It has been reported that local governments directly or indirectly influence 50% of Australia's greenhouse gas emissions through direct emissions of waste, and also in the more general urban planning issues of transport and energy efficiency (Parliament of the Commonwealth of Australia 2000).

Whilst waste minimisation strategies within the Shire are excellent, further efforts are required to address air pollution/greenhouse gas emissions from other sources. It is also recognised that some of the responsibility for monitoring and minimising emissions lies with State Government Agencies, particularly the EPA, though Council has a role in the licensing of ERAs. In addition, much of the onus for reducing emissions lies with the private citizens of Noosa. Many of the actions recommended could result in substantial cost savings to the Council and individuals.

Maintaining air quality in the Shire and contributing to improvements in regional air quality are important for the health and amenity of Noosa Shire's residents. The air we breathe knows no boundaries so we have a collective responsibility to keep it clean.

7.6.1 Action Plan

Action	Responsibility	Comment
Implement action recommendations of CCP program as outlined above where existing programs do not exist or are inadequate.	NSC, residents, commerce, industry	Noosa Shire Council has resolved to join the CCP program.
Extend Tree Preservation Local Law to cover whole of Noosa Shire.	NSC	Underway
Encourage revegetation and management on private rural land.	NSC	Support to Landcare and Land for Wildlife programs.
Encourage the use of renewable energy sources by the community.	NSC, State Government	
Undertake an energy audit within Noosa Council and look at ways to minimise energy usage.	NSC	Energy audits have resulted in significant savings in other parts of the world without diminishing utility or amenity.
Join the Cities for Climate Protection Program.	NSC	
Monitor use of renewable energy within the Shire.	NSC	
Adopt minimum energy efficient standards for new dwellings and buildings in the Shire.	NSC/Building Services Authority	Promote energy efficient hot water system installation.

