



INTERNATIONAL ASSOCIATION
OF PUBLIC TRANSPORT
(AUSTRALIA/NEW ZEALAND)
GPO Box 2531
Canberra ACT 2601
6 / 6 Lonsdale Street
Braddon ACT 2612
Telephone: + 61262475990
Facsimile: + 61262306898
www.uitp.com

Inquiry into Australia's Future Oil Supply and Alternative Transport Fuels

Submission from:

**The International Association
Of Public Transport
(Australia / New Zealand)**

UITP, founded in 1885, based in Brussels, has some 2700 Members in 85 countries.
The Association is one of the leading advocates for change in urban transport in the world with links to the
European Commission, United Nations and the World Bank.
Web Site: www.uitp.com

Information about the Inquiry

Terms of Reference

Referred 29 November 2005 for inquiry and report by 15 June 2006

Australia's future oil supply and alternative transport fuels, with particular reference to:

- projections of oil production and demand in Australia and globally and the implications for availability and pricing of transport fuels in Australia;
- potential of new sources of oil and alternative transport fuels to meet a significant share of Australia's fuel demands, taking into account technological developments and environmental and economic costs;
- flow-on economic and social impacts in Australia from continuing rises in the price of transport fuel and potential reductions in oil supply; and
- options for reducing Australia's transport fuel demands.

Written submissions are invited and should be addressed to:

**The Secretary
Senate Rural and Regional Affairs and Transport
Parliament House
Canberra ACT 2600**

Submissions electronically as an attached document
email: rrat.sen@aph.gov.au

The closing date for receipt of submissions is 24 February 2006.

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Who is UITP?

Founded in Brussels in 1885, UITP, (Union International des Transport Public), has more than 2700 members in 85 countries and has representation from transport operators, regulators, manufacturers and constructors, professional services providers and academia. With its international headquarters in Brussels, UITP has offices in Abidjan, Canberra, Hong Kong, Moscow, Rome and Sao Paolo. To strengthen its influence on the formation of policies, UITP actively takes part in the affairs of international bodies such as the European institutions, the United Nations and the World Bank. Today, UITP is actively engaged with these institutions, participating in international dialogue on issues such as sustainable development and climate change.

UITP's Mission

UITP addresses the strategic issues faced by our Members to monitor our dynamic industry environment and be in a better position to recognise the early signs of development.

Our international links, particularly in Europe, provides members with an opportunity to observe, be prepared and promote, rather than react to change. This is the essence of UITP.

What UITP Does

As a primary voice for public transport in Australia and New Zealand, UITP:

- Promotes and helps development of a viable urban mass transport system in the region.
- Encourages and facilitates cooperation between members and among members and the general public.
- Fosters community understanding of the contribution made by public transport to Australia's economy, society and the environment.
- Promotes and supports industry related research and development.
- Promotes policies and actions that are environmentally responsible.
- Encourages investment in public transport infrastructure.
- Undertakes other activities to assist members in fulfilling their mandates.

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EXECUTIVE SUMMARY

“SURVIVING THE 21ST CENTURY”

With petrol prices recently spiking around \$1.40 a litre, it is obvious that our blissful long ride on cheap fuel is finally spluttering to an end.

Combine high gasoline prices with ever-increasing road congestion around our major metropolitan regions, and you have to ask:

What Will Our Future Be?

There is an interesting but very partial solution in the oncoming wave of toll roads around metropolitan areas. They may enable us to stay mobile – but at a significant per kilometer cost even before fuel.

Yet the crisis, some voices are now telling us, goes dramatically deeper. The very resources that made Australia's twentieth century way of life possible – cheap fuel and cheap land at the forefront – have vanished.

Instead the twenty-first century is delivering massive environmental, economic and political threats. The magnitude of climate change is made worse because of the land and transport choices of the twentieth century.

A good chunk of South East Queensland's explosive population growth, for example, has occurred along environmentally challenged coastline, on land too difficult to develop in earlier times.

So if we look to the transportation future, should we be thinking about more miles of freeways, bypasses, toll roads that assure speed of throughput and a search for more affordable gasoline?

Certainly not. We must strive for a new, less energy-intensive course. It means bringing homes, schools, employment, shopping and recreation closer together. Switching to more compact development relieves the community of the need to operate fleets of vehicles fueled by expensive oil.

It is not a matter of lifestyle preference – it is a matter of national security – forging less costly, more efficient, environmentally sensitive policies that will give us a far better chance to withstand the energy emergencies and climate change process of the new century.

And it is a direction that Australians are increasingly prepared to take. Every poll conducted on this issue in the last five years shows the public favor more investment in public transport and less in road funding.

And there is a cautionary process emerging about toll roads. The idea of “market pricing” for highway access is sound but since most of the new tollway proposals are being put forward by private companies, there is a danger that this shift may

go too far, cutting the public out of the decision-making process and deciding through privatisation what will be built and where.

And there are multiple other reasons for a new transportation course. National asthma rates are skyrocketing with ozone and particulate matter from fossil-fuel burning giving rise to serious health concerns. To handle the expected exponential increase in senior citizens, who will either not choose or be able to drive, we will need much more public transport, and many more safe paths and walkways.

There is also a social equity angle. Australia's poorest families are now spending more on transportation than on housing and food. For the less affluent living on the fringes of our metropolitan areas, who have to own a car to get to work, the high gasoline prices will make the opportunity of ever owning a home a very distant dream.

Finally, and inevitably, there is the global energy supply issue. Car ownership in Australia is amongst the highest in the western world, consuming an ever-increasing volume of our foreign debt. The lack of connection between our foreign policy and our oil appetite is obvious and of great concern.

The real question is not whether, but how do we adjust to a more sustainable future? Clearly there is little hope from promoting policies that encourage car ownership and more dispersed societies.

Belatedly, state and territory governments, lord mayors and local groups are starting the exploration of energy saving green agendas.

But what is required is a fundamental, indeed radical break with policies born out of 20 cents a litre for gasoline.

Many international experts (1) are now predicting that the right to travel when and where we please will be severely eroded over the next 50 years as the shortage of cheap oil and environmental concerns force us to lead more local lives.

(1) *Foresight*, the United Kingdom's Government's science think tank, consulted (2006) 300 transport experts when drawing up its vision of how travel will change by 2055. It concludes that the growing demand for greater personal mobility is unsustainable and based on false notions. *Foresight* also calls for debate on the option of giving each individual a carbon allowance "which would apply to all their activities, not just travel".

Congestion should be tackled by making smarter use of existing capacity rather than by building roads and other transport links. We cannot presume that we will have cheap oil for the next fifty years or that we can respond to increasing demand by building more capacity, or that we will continue to have the right to move as and when we please.

People should be forced to pay the true cost of their journeys, including compensating for the environmental damage they cause. Charging for trips by the kilometer would make people aware of the real costs of travel.

The federal government has a vital role to play in leading the nation on environmental, taxation and pricing policy that supports the actions of the local leaders of our nation.

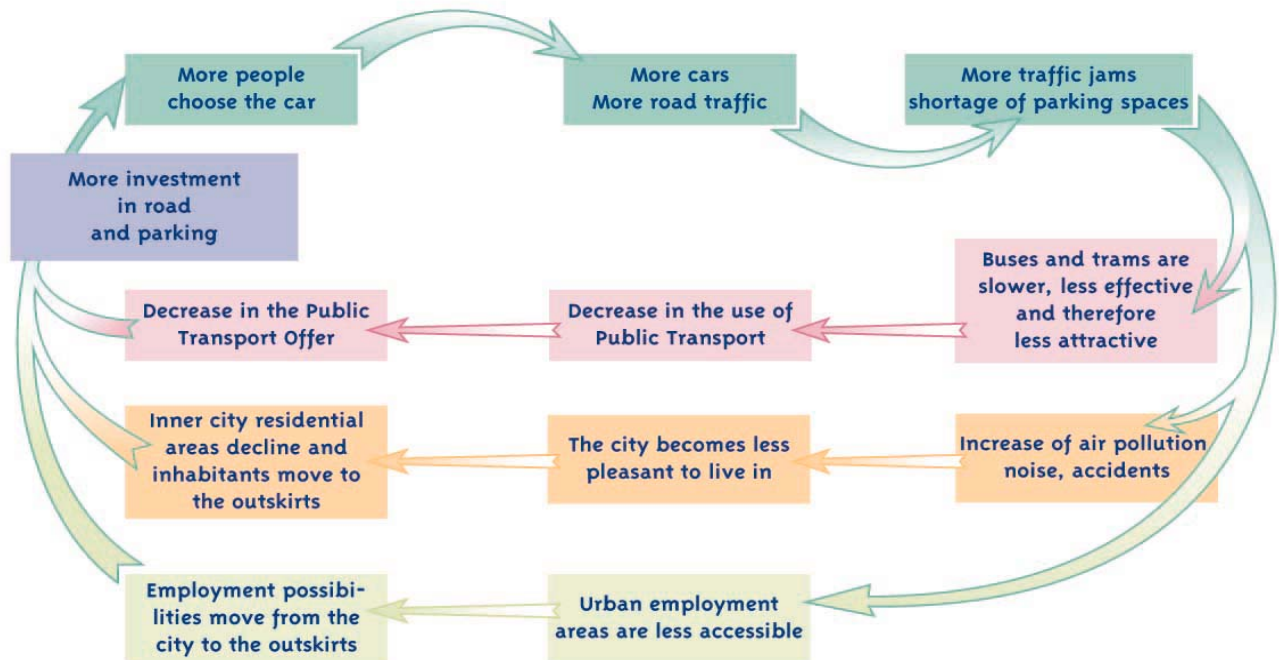
The time for action is short. As suggested (Sydney Morning Herald 20/1/2006), by leading environmentalist Dr Tim Flannery:

“There is still time to turn the situation around. We have set change in motion and that change will take about 100 to 200 years to wash it's way through the system - even if we stopped greenhouse gas emissions tomorrow. I don't think we've yet reached that point where we are tipping the world's climate into a new regime. We've got maybe one to two decades to address the issue.”

On behalf of its members, UITP urges the Senate Rural and Regional Affairs and Transport Committee to adopt the following recommendations:

1. Establish a sustained program for direct investment in public transport, in partnership with state, territorial and local governments.
2. Amend the *Income Tax Act* to make employer provided public transport benefits fringe benefit tax-exempt. This will eliminate the inequity between employment benefits for drivers and public transport users.
3. Enhance existing infrastructure investment programs through the AUSLINK Programme with additional funding allocations.

The vicious cycle of urban decline



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Current and Future Oil Supplies

Term of Reference A:

'projections of oil production and demand in Australia and globally and the implications for availability and pricing of transport fuels in Australia'

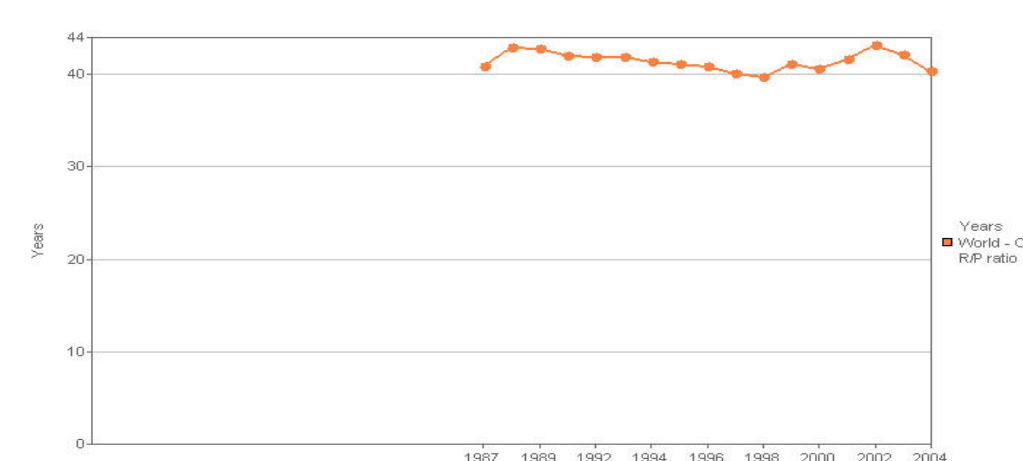
Oil is a finite resource.

Oil is a fossil fuel that took millions of years to form. However we are using oil at a rate that will substantially exhaust it in not much more than one century.¹

And while it is being used – in cars, in power generation, in industry and the community – the environment and human health continue to be harmed.

These facts are generally not in dispute nor subject to debate. They are agreed by most Governments around the world. They are agreed by much of industry, academia and the community.²

The only debate is around the timing of oil depletion and the degree of environmental harm. Even the most authoritative and arguably the most conservative sources are talking about reserves of around 40 years based on the current rate of production.



Source: BP Statistical Review of World Energy, June 2005

The latest (2005) BP Statistical Review states that the world's Reserve to Production ratio (in effect the 'life' of oil) in 2004 was 40.5 years. That is if we continue using oil at the current rate and from the known reserves, oil supplies will run out after 40.5 years. This of course is a theoretical concept as it ignores the increasing use rate, the possible new reserves that may be found, and the effect that inevitable price increases may have.

¹ "A growing body of oil company geologists, oil executives, and investment bankers, including the influential American geologist L.F. Ivanhoe, see (the peak of oil production) happening by 2010. The (US) Department of Energy (DOE) has given various estimates, ranging from 2016 to 2037." Jim Montavalli, The E/Environmental Magazine, Jan/Feb 2006.

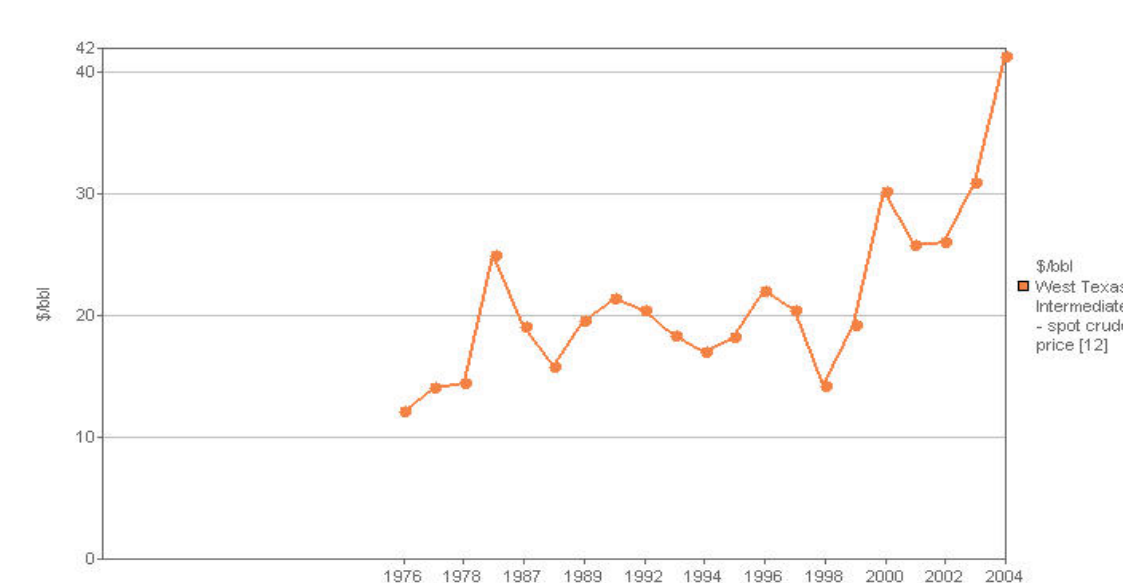
² "Global greenhouse gas emissions will rise by 52% by 2030, unless the world takes action to reduce energy consumption" - this prediction comes from the latest annual World Energy Outlook report from the International Energy Agency (IEA). (BBC News November 2005)

Importantly, the reported Reserve to Production ratio had dropped from the 43.2 years predicted in 2002. Even though the known reserves had increased, the world's rate of use of oil had increased more quickly, and the 'life' had dropped.

Similar predictions are made by the International Energy Agency (IEA) which is the official energy monitoring authority of the Organisation for Economic Cooperation and Development (OECD).

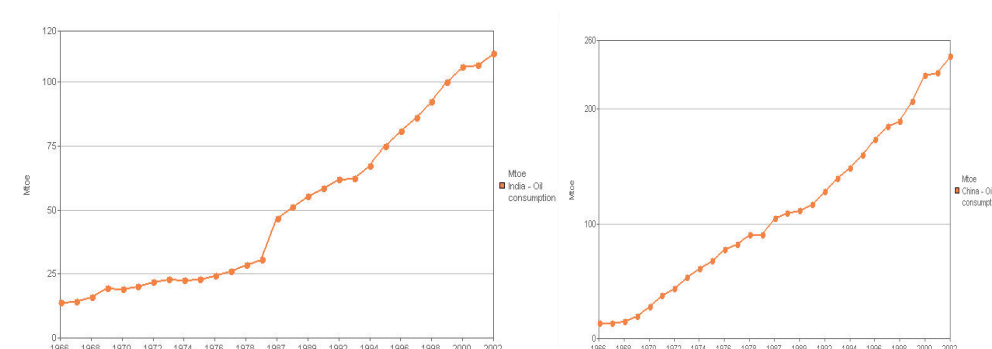
But oil will not suddenly run out as might be anticipated from the graph shown above.

Oil supplies will progressively become scarcer and the price will inexorably increase to levels which will make the current levels of mobility too expensive to maintain. Arguably, this is happening now.



Source: BP Statistical Review of World Energy, June 2005

And these events are being very much driven by pressures from within our own region by the economic 'tigers' of China and India. Their appetite for energy and oil, in particular, is a major driver of reserve depletion and price increases.



Source: BP Statistical Review of World Energy, June 2005

In Australia the impact of these pressures has seen the cost of petrol to the community rise by approximately 10% in the June quarter of 2005 (*Australian*

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SENATE COMMITTEE FEBRUARY 2006 – FINAL

Bureau of Statistics, Consumer Price Index, June Quarter, July 2005). The monthly cost of petrol for Sydney was reported by the polling group AC Neilsen to have risen 40% during the 21 months to September 2005, a pattern replicated around Australia.

The effects of these factors around Australia have been frequently observed and reported anecdotally as being significant. Australia is a large continent with dispersed communities. Personal and industry mobility is an economic and social requirement. Increases in transport fuels feeds straight into personal and industry costs. Transport costs are already on average some 15% of household budgets, closer to 25% in the outer metropolitan areas.

There have been many reports and considerable acknowledgement by media and political commentators and observers, on the increase in commodity prices, in particular food that can be sheeted home to increase in oil prices.

Importantly these anecdotal reports have recently been supplemented by an academic study on the impact of oil prices on our cities (*Jago Dodson and Neil Sipe, Oil Vulnerability in the Australian City, Urban Research Program, Griffith University, Research Paper 6, December 2005*).

This study demonstrated and quantified the large impact on people within Brisbane, Sydney and Melbourne of the increase in oil prices. Most importantly it showed that the negative impacts would fall disproportionately on the socio-economically disadvantaged outer suburban members of our communities. This group is already at risk from factors such as travel costs to work and the potential for rising interest rates due to increasing energy costs.

Politicians from all parts of the political spectrum, including Prime Minister Howard, Leader of the Opposition Beazley, and Treasurer Costello, have acknowledged that the price of fuel is likely to remain high for the foreseeable future.

The UITP therefore argues that there is no disputing that the age of low-cost energy is coming to an end.

Given these facts, the remaining debate is therefore about issues such as:–

- ? How fast are we using the oil and how much is left?
- ? What type of damage is occurring and how much?

But to a very large extent these are not key questions. These are only questions about the degree of the problem – not the fundamental issue that a problem exists.

The UITP submits that there is international consensus that there is a looming crisis with the

- availability
- security of supply, and
- price of future oil supplies.

Given the global market for oil, and despite Australia being 60% self sufficient in oil supplies, the pressure on oil supplies will inevitably impact on Australia and lead to major economic and social disruption and harm.

Almost certainly this is likely to be accompanied by environmental harm.

The time to act to address these issues is now.

Investing time, energy, resources and money now will mean that the problem can be managed well in advance and negative consequences managed.

UITP believes that there is a fast looming 'crisis' in Australia resulting from reducing global supplies of oil and the inevitable rise in oil prices.

UITP believes that there is no dispute or debate about the facts of reduced future oil supplies and constantly rising prices. The only debate is about time frame and size of increases.

UITP believes that there are many policies and actions that can and must be taken now to minimise the negative impacts of these changes.

Potential Alternative Fuels and Technological Developments

Term of Reference B:

'potential new sources of oil and alternative transport fuels to meet a significant share of Australia's fuel demands, taking into account technological developments and environmental and economic costs'

There are a number of fuels which are being developed to varying degrees by industry and Government around the world. However it must be said that efforts in this direction by any Australian Government are still extremely small. In some cases, current policies and practices are counter-productive to encouragement of the development and/or use of alternative fuels.

Principal alternative fuels and technologies being examined are

- Biofuels, principally
 - Ethanol, and
 - Biodiesel
- Natural gas – both the fossil fuel and from biogas
- Hydrogen
- Various hybrid arrangements with conventional internal combustion engines and electric motors working together in the same vehicle
- Plug-in Electric vehicles with electricity being provided through the grid and generated from renewable sources such as wind generation
- Fuel cells in various combinations with other technologies

Fuels

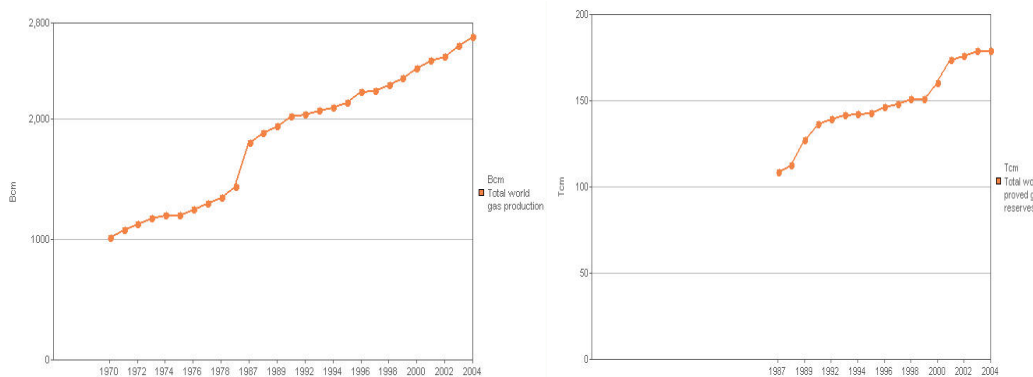
Natural Gas

Some commentators argue that the best and currently available alternative transport fuel is fossil fuel natural gas. The argument is made that there are plentiful supplies and these will not be exhausted for many years to come – perhaps centuries. Certainly Australia has extremely large reserves³.

There is no doubt that the world's known reserves of fossil fuel natural gas, and the global production have been increasing.

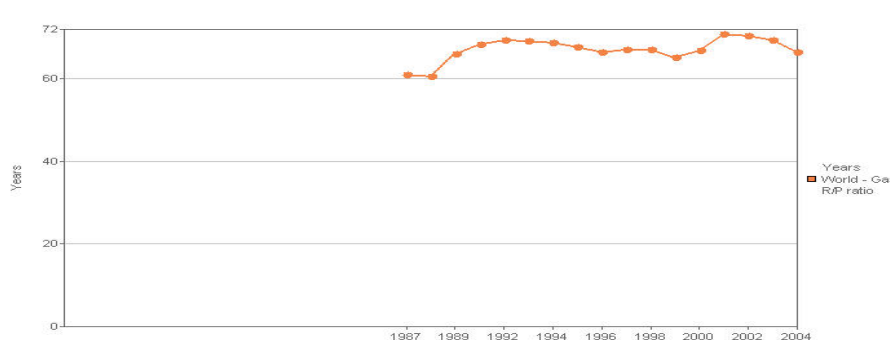
³ See Securing Australia's Energy Future on the Department of Prime Minister and Cabinet website http://www.dpmc.gov.au/publications/energy_future/chapter7/10_gas.htm

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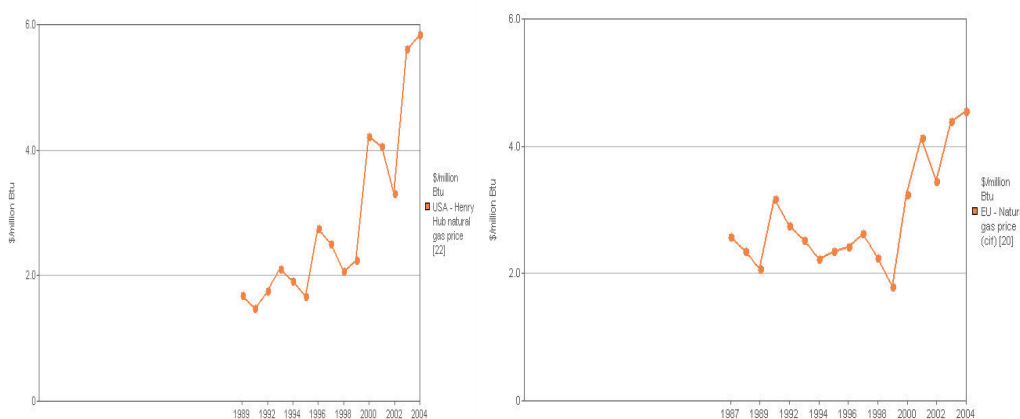
Source: BP Statistical Review of World Energy, June 2005

However the Reserve to Production ratio (the 'life' of natural gas reserves) is still only estimated to be less than 70 years, and this has been steadily reducing this century (see graph below).



Source: BP Statistical Review of World Energy, June 2005.

Meanwhile the price of natural gas has been increasing dramatically.



Source: BP Statistical Review of World Energy, June 2005

These supply and price issues are certainly affecting Australia and will continue to do so as Australia is in a global natural gas market.

Natural gas also has similar, or perhaps marginally reduced, environmental harm issues relating to human health and global warming, to those of oil.

If natural gas is a solution, it is clear that it is not going to be one that is workable in the long term. It is likely only to delay the issues and impacts that

we are currently seeing, such as security of supply, environmental impact, climate change, spreading them over a longer time scale but not avoiding them. Arguably not even ameliorating them.

Biofuels

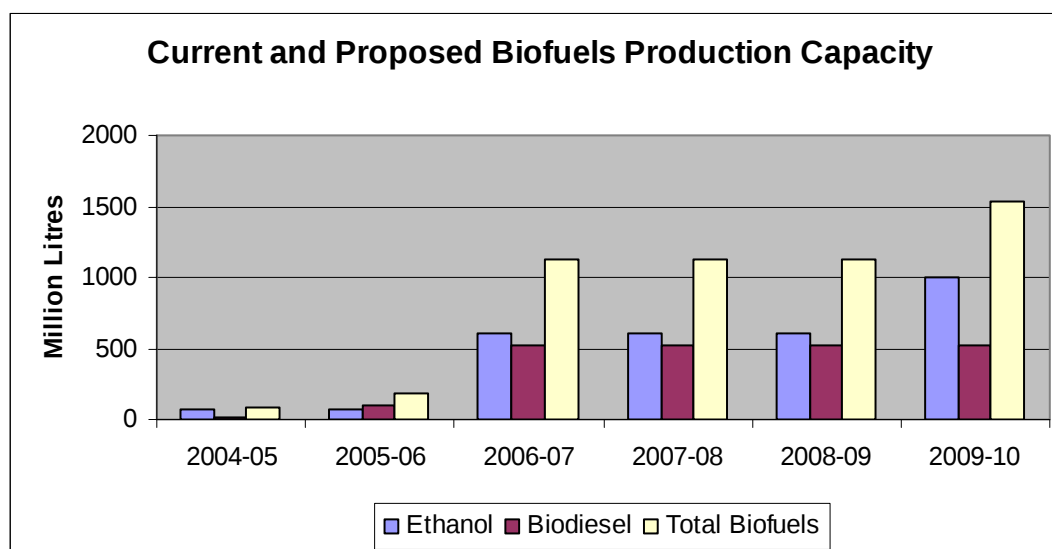
Biofuels, mainly ethanol, have been given considerable public airing in Australia in recent years.

Biofuels do have some advantages. Principal among these is the fact that they can be, but are not always, produced sustainably. Biofuels are also biodegradable.

However the international evidence is that they are unlikely to be a replacement for oil. They are more likely to be niche fuels. They are unlikely to be produced and distributed in sufficient quantities to fill anything more than a small, but perhaps significant, niche in the global transport fuel market.

The global evidence is also that biofuels use is generally being promoted and supported by Governments as a means of supporting the agricultural industry, rather than because of its intrinsic availability, or price or environmental advantages.

Australian production of biofuels is extremely small and the predictions for the future are that this will remain the case⁴.



Source: Report of the BioFuels TaskForce to the Prime Minister, August 2005, Commonwealth of Australia

Never the less, while the future role of biofuels as a broad scale transport energy source may be relatively small, they may have a useful and significant role by broadening the range of transport fuels available. This is important strategy in increasing Australia's transport energy self sufficiency and energy security.

⁴ By comparison estimates by Geoscience Australia of future crude oil plus condensate production suggested production in 2005 at between 78.0 ML/d or 490,700 bbl/d and 107.3 ML/d or 674,700 bbl/d

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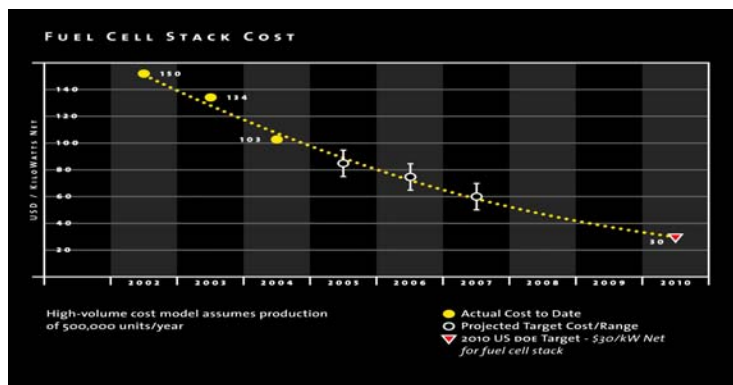
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Hydrogen

While hydrogen has the potential to be a long term, sustainable, broad scale fuel, there are considerable technical, logistical and investment hurdles to be overcome. The current predictions are that hydrogen may not be technically and commercially viable as a large scale fuel for at least 20 – 30 years.

Even the most optimistic predictions for commercial availability are for a decade away and are based on very optimistic assumptions.

Nor do these predictions mean that the commercial investments will be made and that implementation will necessarily occur.



Technology

There is a range of vehicles technologies being developed, trialed and, in some cases, commercialized by large and small vehicle manufacturers. Engines are becoming more fuel efficient and cleaner. Supplementary new technologies are being developed to support older technologies.

Perhaps the most well known commercialized and successful example of these developments is the Toyota Prius.

Fuel cells have also been developing very quickly and the testing has been proving them more reliable and far further advanced than expected.

Electric powered vehicles are also currently undergoing a 'revival' after they fell out of favour in the last one or two decades of the last century.

However nearly all these developments are only offering a potential extension of the current oil supplies. Mostly they still use existing types of fuels – mostly oil – they just use less of it per kilometer.

The only technology that offers a potential for the long term, broad-scale, sustainable, non-oil based transport energy system is hydrogen and fuel cells. And as been pointed out above, that system has many hurdles to overcome and is most likely at least one or two decades away from possible commercialization.

UITP believes that there are alternative transport fuels to oil but that they do not at this stage or are likely in the medium term to offer a broad-scale, sustainable or commercially viable alternative.

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- *Fossil derived natural gas has many advantages, especially for Australia because of our large domestic supplies. However it also carries with it many of the same negatives as oil.*
- *Biofuels such as ethanol, biodiesel or biogas have some advantages but only as relatively small scale 'niche' fuels.*
- *Technological advances are improving fuel efficiency and reducing emissions and other harmful side effects of oil, but they are generally only offering reduced rate of usage, and marginal extension of supplies*
- *Hydrogen may be a broad scale sustainable energy carrier of the future but there are many technical and commercial hurdles to overcome.*

Impacts of oil price rises.

Term of Reference C:

'flow-on economic and social impacts in Australia from continuing rises in the price of transport fuel and potential reductions in oil supply'

As has already been outlined above, the impacts of oil price rises are clear, observable and agreed by numerous political, industrial, academic and media commentators.

The impacts are wide ranging and occur across Australia and throughout the community – on industry, on households, in cities and in the country, on farms and in factories.

The impacts are also happening right now!

As well as negative impacts right across our community, there are also two sectors which will be hit harder than most. These are

1. energy intensive sectors of industry; and
2. already disadvantaged groups within our community.

Rises in oil prices disproportionately impact on those energy intensive sectors of industry – such as mining, farming, manufacturing – which are commonly export focused and driving forces in Australia's economic success.

The effect is a double 'hit'. Rising oil prices not only increase the cost of production but also dramatically increases the cost of transport to the international market-place. The end result is a major economic blow to Australia.

The second group to be hit harder than most is those who are already economically disadvantaged. These are people often living in the outer suburbs of cities, and rural and remote areas of Australia.

These people are often already struggling as a result of unemployment, distance from friends, families and support networks, and cost of good and services.

These impacts have long been recognised anecdotally, and the impacts in cities have recently been studied and documented academically as detailed above (Dodson & Sipe, 2005).

The UITP believes that oil price rises are causing significant negative impacts throughout Australia now. They are being felt by industry and by ordinary men and women throughout the community. They are being measured and recorded in indices of economic and social wellbeing by objective observers of Australian society such as the Australian Bureau of Statistics.

Options for reducing Australia's transport fuel demands.

Term of Reference D:

'options for reducing Australia's transport fuel demands'

Government Policy – Transport Energy Strategy

The first and most significant opportunity that exists to achieve a major and immediate reduction is change in Government policy. As noted above, no Australian Government has any significant or effective policy for reducing Australia's transport fuel demands.

Australia must immediately develop a Transport Energy Strategy.

Australia is highly dependent on fossil fuel powered transport services – for industry, for economic activity and for personal and social mobility. More than 95% of our transport relies on oil approximately 40% of which is imported. To not have a comprehensive Transport Energy Strategy is a major gap in public policy and exhibits no leadership.

The European Community commenced its policy development for energy and transport energy in 2000 with the publishing of the Green Paper: *Towards a European Strategy for the Security of Energy Supply (2000)*. The Commission proposed a 20% substitution of traditional automotive fuels by alternative fuels by the year 2020. This was subsequently followed up by various policy directives on transport fuels.

Within the EC various countries, most notably Germany, have well developed transport energy policies.

In North America the United States and Canada have developed some transport energy strategies but no over-arching policy.

A Transport Energy Strategy needs to recognise and take account of a number of issues, including

- oil (and all fossil derived fuels) are effectively finite resources and as supply is reduced in the presence of a maintained or increasing demand, the price will inevitably rise;
- the use of oil (and all fossil derived fuels) have negative impacts on the environment through climate change and other environmental degradation, and on human health;
- Australia is highly dependent on transport to support our economy and for social well being. Mobility is a key to our quality of life. More than 90% of our current transport energy is derived from oil.

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- Transport energy choice and the quantity used are affected by many factors, particularly financial factors. To be effective, a Transport Energy Policy must
 - be comprehensive and reach right across the full spectrum of Government, industry and community activities;
 - use all available levers – including economic, environmental and social; and
 - seek to modify demand as well as supply.

The elements of an Australian Transport Energy Strategy should therefore address:

✓ **Energy Security and Self Sufficiency**

It is important that Australia seek to increase its self sufficiency in transport energy supplies. Currently Australia is largely dependent on imported supplies of oil.

This suggests that policies and programmes should be implemented that increase the use for transport of Australia's very large reserves of natural gas. However this is not a long term solution as already argued above.

This therefore further suggests that policies and programmes should be implemented that support the development and use for transport of domestically produced biofuels. However this is not a large scale solution as already argued above.

This therefore also suggests that policies and programmes should be implemented that monitor and perhaps prepared for the possible introduction of hydrogen as a transport fuel. However this is not a short or medium term solution as already argued above.

✓ **Optimising Fuel Diversity**

Over reliance on a single energy source and/or supplier of that energy – such as oil from the Middle East – greatly increases Australia's vulnerability to the negative impacts. It is important to increase the range of alternative fuels and develop a suite of options. While this may increase the infrastructure and related costs on the one hand, it greatly increases the resilience of Australia's transport system, and reduces the vulnerability and lessens the risks and consequences of harm to the Australian economy and community from increased oil price rises.

✓ **Reducing Environmental harm and increasing sustainability**

It is important that Australia seek to reduce the negative impacts of transport fuels and increase the sustainability of our transport system.

✓ **Economic and other policies**

- which do not reduce or actively encourage increased transport energy use. Most notable in this category is the Commonwealth Fringe Benefit Tax which encourages increased private car use through increased tax deductions;
- which do not support public transport. Most notable here are Commonwealth Government's decisions such as imposing a GST on public transport ticket prices.

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- which do not support alternative fuels. Most notable here is the Commonwealth Government's decision to increase the excise rate on alternative fuels to a similar level as petrol. This has decimated the development of alternative transport energy with the Prime Minister's Task Force on BioFuels in 2005 reporting that many projects in planning may not proceed due to the tax changes.

The role of Government is to show leadership. In the area of transport energy, Australian Governments have not provided this.

Arguably this lack of leadership, combined with some policies which are counter productive to reduced transport energy use, development of alternatives, and avoiding or mitigating possible harm, is accelerating the problem and exacerbating the impacts.

The UITP believes that it is important that the Commonwealth Government, collaboration with the State and Territory Governments, develop a Transport Energy Strategy, including transport demand management policies and strategies, that will provide a policy, strategy and programme framework to

- ✓ *reduce the demand for oil*
- ✓ *encourage and support the development of alternative transport energy sources*
- ✓ *increase the self sufficiency of Australia in transport energy and the diversity of our sources*
- ✓ *reduce the costs to the community from the very large and rapidly increasing congestion costs.*

An Increased Role and Support for Public Transport in Australia

Australia's public transport systems have the potential to be major contributors to

- ✓ reducing Australia's demand for oil
- ✓ reducing negative environmental impacts from oil use
- ✓ leading the development of and support for domestic alternative transport energy sources
- ✓ protecting and supporting Australia's economy through providing inexpensive personal mobility
- ✓ reducing current and future congestion costs to the community

Australia's public transport systems can and should be major players in reducing the risks to Australia from rising oil prices and the consequences from these rises.

Public Transport and Oil Demand

Public transport is an efficient method of moving people.

Based only on the fact that one bus can carry in the order of 60 people from A to B, the economies of scale are apparent. When additional factors such as the

general vehicle efficiency, particularly train efficiencies, are added in, the reduction in oil use per capita is clear⁵.

However public transport also has a synergistic impact through reduced private car use. Each public transport passenger potentially takes a car off the road, leading not only to reduced oil use for that car, but greater efficiency for the remaining vehicles through reduced congestion.

Indeed it can be argued that in this respect public transport can be its own 'worst enemy' through the benefits it provides to non-users of public transport making their non-use more attractive!!

However the overall impact of greater public transport use is a stretching of the global oil supplies.

Public Transport and the Environment

Public transport can play a major role in reducing environmental harm from transport system operations.

Not only does increased public transport patronage reduce private car use (predominantly single person car use) but vehicles are commonly intrinsically more 'environmentally friendly'.

- ✓ Rail networks, particularly electric powered networks, can greatly reduce harmful emissions
- ✓ New buses meet Euro IV standards and greatly reduced emissionsⁱ
- ✓ Public transport fleets operating on compressed natural gas can reduce overall emissions, are using domestically available fuels, and contribute to a diversification of fuel supplies
- ✓ Public transport fleets operating on biofuels (biodiesel and ethanol) are reducing emissions as well as increasing the diversity of fuel supply options.

Public Transport and Transport Fuel Options

Public transport fleets are already playing a major role in diversifying the fuel options available within the community, developing alternatives and contributing to enhanced security of supply within Australia.

Public transport operators around Australia are leading in the trialing of a wide range of fuels. Trials and demonstrations of natural gas, biogas, biodiesel, ethanol, aquadiesel, hydrogen, to name a few, have been conducted by public transport operators themselves or in collaboration with major energy companies and small local developers.

Fuel diversity, and fuel self sufficiency will be key strategies to achieve fuel security. Public transport fleets are already contributing to these objectives and can play an even more important role in the future.

Public Transport and the Economy

Public transport is a major contributor to the Australian economy. The systems already play a major role in keeping our cities operating efficiently and

⁵ In their 2005 publication **Outlook for Energy – A View to 2030** Report, Exxonmobil acknowledge the importance of efficiencies: "As demand rises, energy efficiency will become increasingly important, with the pace of improvement likely to accelerate."

effectively. They will increasingly be called upon to play key roles as populations increase and congestion looms large in the minds of the community, our industry and our decision makers.

Developing Australia's Public Transport Systems

Formal responsibility for public transport lies mainly with State and Territory Governments.

Australia has a very high degree of car dependency and is one of the most car dependent countries in the world. It is at least equal to and arguably greater than that in California.⁶

This has led to large political and subsequently financial Government investments and support for the road network. In recent times this has been supplemented by private investment in the road network and exponential increases in parking facilities often with a large element of public funding and/or policy support.

PARKING IS COSTLY (Report from Sydney Morning Herald – January 2006)

Free parking in shopping centres is fuelling Sydney's costly and worsening congestion, and shoppers who choose to catch the bus or train are subsidising those parking spots, a transport expert has warned. The number of free parking spots in Sydney had increased by more than half in 10 years and there were now at least 140,000 free spots at shopping centres, said Garry Glazebrook, a transport consultant. That figure did not include 3300 spots at Westfield Bondi Junction or the 3000 spots planned for a huge retail development at Sydney Airport. Mr Glazebrook said a recent study of the effect on traffic of free parking estimated the cost of subsidised parking in the US was equivalent to what that country spent on its defence force. "In fact, there are about three parking [spots] for every car, and when you look at the land value of all of that, it is quite enormous," Mr Glazebrook told a federal parliamentary inquiry into sustainable cities last year. "If you go to the shops [in Australia] for less than three hours you get free parking, and if you are silly enough to walk there or use a bus you are subsidising the person who drives there. "Everybody pays for [car parks] in the price of the goods, but the point is that if you go by public transport you are subsidising the car driver." The NSW Sustainability Commissioner, Peter Newman, told the parliamentary inquiry that cars, and the space needed to park them, was another reason why improved public transport was vital for Sydney.

In some jurisdictions, road funding has had guaranteed proportions of Government funding and revenue streams dedicated to road enhancement.

But the process of building more roads in an effort to reduce congestion and ease traffic flow has been counter-productive. More roads, has led to more cars which has led to increased congestion.

The end result is that all large cities in Australia suffer from significant traffic congestion during varying times of the day. The costs to the individual and the economy are significant and rapidly increasing.

CONGESTION COSTS (Report from Sydney Morning Herald – January 2006)

⁶ In their book *Sustainability and Cities: Overcoming Automobile Dependence* (1999), Newman & Kenworthy have identified US and Australian cities as the most extensive in their level of car dependence, when measured against their transportation patterns, infrastructure and land use.

Sydney's reliance on cars is costing more than \$18 billion a year through congestion, accidents and air pollution, and threatens to stunt the state's economy. An independent report commissioned by the **Sydney Morning Herald** into the hidden social costs of Sydney's ailing transport network reveals commuters are wasting more than three days of their lives every year stuck in traffic. Poor transport planning will stall the city's economy and suppress wages, and Sydney risks losing jobs and investment to Melbourne and Brisbane as congestion makes it an unattractive place to live and work.

The study, by the Centre for International Economics, found the social costs would grow to nearly \$24 billion in 2020 unless the State Government invests billions of dollars to fix Sydney's dysfunctional transport network. The report modelled the hidden costs of the transport crisis and found the Government needs to invest \$11 billion on top of its current spending over the next 15 years, just to keep these costs at last year's level. The cost of time lost stuck in traffic and higher vehicle operating expenses makes up about \$12 billion of the current social costs of \$18 billion. Accidents and the costs from resulting health care, lost labour and vehicle repairs contribute \$3.9 billion. Air pollution costs more than \$1 billion and greenhouse gas emissions \$145 million, the report says.

Already, Sydney motorists spend 73 hours a year stuck in traffic if they travel just 22 kilometres a day, and that will only worsen, the consultants say. Sydney's clogged roads delay commuters 33 seconds for every kilometre they drive and if they travel 8000 kilometres a year, they will spend an extra 73 hours behind the wheel. Based on the average hourly wage of about \$25, that amounts "conservatively" to a cost of more than \$1800 a year per motorist - and that does not include increased fuel consumption from driving in traffic.

But the social costs are not paid directly by the motorists. If they were, expenses such as registration, insurance, road tolls and fuel would be much higher. "Failure to charge motorists for these costs sees the community effectively subsidising private vehicle use compared to other transport modes, and in doing so, reduces public transport and contributes to further losses on public transport," the report says.

The number of kilometres travelled in Sydney is predicted to rise by nearly a third in the next 15 years - as Sydney's population increases by an average of 42,000 people a year until 2020 - and the report warns that the "liveability" of Sydney and the state's economic activity will deteriorate. If immediate steps are not taken to ease congestion, Sydney will surrender economic growth to Melbourne and Brisbane because they will be seen as easier and cheaper to get around.

Clogged roads will force up production costs, which will lead to less demand for goods and services and therefore less demand for investment or the workers to make the products. NSW's Sustainability Commissioner, Peter Newman, said it was the first time he had seen an analysis translate the social costs of transport into an amount that could be spent on infrastructure to overcome them. But he warned the Government against investing in roads at the expense of public transport. "You could take that [\$11 billion] and say we need to build a lot more roads but that would just exacerbate the [congestion] problem," Professor Newman said. "There's a vicious cycle there of just creating more traffic ... that's the cycle we have got to get out of and I don't see a way around that except for creating better public transport."

The report warns that underspending will also damage the economies of Newcastle and Wollongong. But the report says Sydney's obsession with cars is unlikely to subside because of the Government's tardiness in expanding rail to the city's fringes, where there will be at least 275,000 new houses built in the next 25 years. "Increasing reliance on road transport looks set to continue as the rail network fails to keep pace with continued housing and employment growth in suburbs away from the rail network," it says

A Victorian Government Report, *Melbourne 2030: Planning for Sustainable Growth* estimated congestion in Melbourne to cost \$2.7 billion annually in 1995. The study reported that this cost will increase to \$8 billion a year by 2015 and \$10 billion a year by 2020. These costs impact everyone by raising business and freight costs, holding up public transport and private vehicles, and increasing air and noise pollution.

The same Report stated that building additional road capacity will not reduce road congestion in the medium term.⁷

⁷ Los Angeles, for example, is struggling to cope with its car-based system and huge network of freeways. It is now implementing transit solutions, such as a Bus Rapid Transit, which, by 2008, will comprise 26 bus lines, a 600-kilometre network and 600 stations at a capital cost of \$A450 million, and a planned rail system designed to carry 400,000 people each day.

Conversely, public transport has not commonly and certainly not uniformly, been supported by Australian Governments. Public investment has been intermittent and commonly insufficient to maintain infrastructure, equipment and services. It has certainly been insufficient to allow for increases in the networks or improvements in services or quality. Some State Governments have even contracted the level of public transport services.

The current significant exception to this is in Western Australia where the State Government has invested some \$1.6 billion to construct a major new railway to the southern suburbs of Perth and purchase new rolling stock. Some other jurisdictions are also making investments, although much small, in public transport infrastructure.

There is a major need for Australian governments to commit to our public transport systems in terms of

- ✓ Policies and programmes which
 - Reduce the demand for transport
 - support and encourage the use public transport
- ✓ Providing long term, secure funding for public transport
 - Capital acquisition
 - Infrastructure development
 - Service provision
- ✓ Expansion of the public transport systems and services

While public transport traditionally lies within the sphere of responsibility of state and territory governments, as demonstrated above commonwealth government policies, programmes and practices have been and continue to be highly significant in influencing the future of public transport around Australia.

Commonwealth governments have argued that investments in public transport are the domain of state and territory governments. Commonwealth governments have therefore been extremely unwilling to provide substantial funds for capital for rolling stock or for infrastructure. They have also been unwilling to provide funds for recurrent operational costs.

However, commonwealth government policies have had and continue to have a significant impact on the public transport systems. As demonstrated above, the impact of Commonwealth Government policies on the price of fuel, the price of fares and the price of capital equipment are large and raise the costs of operations.

Given the relatively much smaller capacities of the state and territory governments to raise revenue and to afford investments in public transport, the end result has substantially been either neglect of public transport, or raising its establishment and/or operational costs, or worse still increasing the relative attractiveness of the private car alternative.

A sad reflection of this disinterest is the almost complete lack of any mention of public transport on the agenda of the Australian Transport Ministers' Meetings over the last decade or more.

Source: Melbourne 2030: Planning for Sustainable Growth A Report of the Victorian Government - commenced in 1999 but now in implementation phase.

"part of our Growing Victoria Together Vision that balances economic, social and environmental goals, so that our children will enjoy an even better quality of life." (Premier Bracks)

UITP, founded in 1885, based in Brussels, has some 2700 Members in 85 countries.
The Association is one of the leading advocates for change in urban transport in the world with links to the
European Commission, United Nations and the World Bank.
Web Site: www.uitp.com

This demarcation dispute and blame game is not sustainable.

The relative lack of quality public transport services is impacting on all tiers of Australian Governments and throughout the community. All levels of Governments must act in concert and with a single set of policy objectives in view – the reduction of the current levels of oil use for transport energy, halting the spiraling costs of congestion on the economy, and encouraging and assisting public transport systems around Australia to make their optimal contribution to Australia's economic, social and environmental well being.

New Policy Suggestion from a NSW UITP Member

*Establish a **Sustainable Transport Fund** to initiate public transport, cycling/walking and innovative transport initiatives.*

There could be rounds of funding, with appropriate guidelines for submission etc. Eligible organisations could include councils, state/territory government, PPP's, and companies doing innovative things – ranging from car sharing schemes to new transport technologies to reduce energy and greenhouse gases etc).

Some projects should not be eligible, such as freeways. However traffic management measures such as pedestrianisation of city centres, even pilot congestion charging schemes could be eligible. Projects would need to demonstrate environmental and/or health benefits, as well as the potential for expansion or adoption on a more widespread basis. Hence demonstration and pilot projects could be encouraged. Often once started, such projects can then grow without further Federal funding, after the concept and value of the project is proven.

An allocation from Canberra of perhaps \$500m pa across Australia initially. This could also leverage considerable matching expenditure from local and state government. This would be sufficient to fund initiatives ranging from small scale projects up to significant public transport initiatives.

Some part of the funds could be reserved for projects to be initiated by the Federal Government rather than in response to submissions.

If I may be permitted an anecdote here, when Jack Ferguson (former deputy premier of NSW) was in charge of allocating job creation funds, and was being besieged by backbenchers wanting projects in their electorates, he insisted that the money be divided up at a local government level in proportion to the number of eligible unemployed people as measured by CES and ABS. He saw his role as “keeping the bastards out of the tuck shop” – meaning his State labor colleagues). In NSW over \$500m in such funds were allocated over a three year period.

To be meaningful, such a program should run over at least 5 years, which could generate at least \$5 billion additional investment in sustainable transport initiatives (probably considerably more). It could help reverse the dangerous trends which are currently in the other direction as our cities become ever more car dependent.

To maximise the benefits of the Fund, appropriate policy support could be added, in some of the areas identified in the Sustainable Cities Report of 2005.

A key would be to prevent any one sector (eg state governments) from appropriating the money and kudos. This could be done by controlling the guidelines and selection process and perhaps by notionally allocating funds to specific categories – eg a proportion (say 5%) for innovative private sector projects, another proportion (say 25%) for joint projects with Councils (likely to be mainly things like cycleways, pedestrianisation, shuttle bus initiatives, possibly congestion charging schemes etc), and the remainder (say 70%) for larger scale public transport initiatives (open to state Governments and PPP's; the latter could include State and/or Local Government).

Projects should be of a capital nature only – on-going funding support should be from fares, by state / local government or from funds generated by the PPP's. Given that most public transport operations run at an operating loss when full depreciation is allowed for, this can create funding issues for governments. However there are many innovative ways to address this, such as the use of parking fees to subsidize free inner city shuttle services (as in Perth), or allocation of land value increments to the project as is done in the US (eg designating areas around stations as special transit zones, and allocating increments in land taxes, stamp duty revenues, rates and other property related taxes to a fund to help cover the cost of the transit service).

By helping establish some of these on-going funding initiatives, the federal government could permanently change the way in which urban transport is priced and funded. This is the longer term challenge which must be solved if we are to generate more sustainable cities. In the long run, full congestion charging has to be the answer, with revenues allocated to a fully integrated, multi-modal system. However a circuit-breaker in the form of Federal funds is needed to kick-start this process, given the grip that State Treasuries have on State finances.

The UITP believes that it is important that the Commonwealth Government, in collaboration with the State and Territory Governments develop a comprehensive public transport policy which:

- ✓ *Recognises the large benefits that public transport systems provide to the Australian community, both users and non users, through reduced congestion costs, increased economic efficiency, enhanced environmental outcomes and social well-being;*
- ✓ *Provides long term and secure funding for investment in public transport*
 - *Rolling stock*
 - *Infrastructure*
 - *Recurrent operational costs*
- ✓ *Review and minimises existing policies which provide encouragement to increased and unnecessary use of private vehicles*

UITP and Mobility

UITP is committed to sustainable mobility.

A sustainable transportation system is one that:

Allows the basic access needs of individuals and societies to goods, jobs, education, leisure and information to be met safely and in a manner consistent with human and ecosystem health, and with equity within and between generations.

Is affordable, operates efficiently, offers choice of transport mode for seamless intermodality and supports a vibrant economy.

Limits emissions and waste within the planet's ability to absorb them, minimizes consumption of non-renewable resources, the use of land and the production of noise, and reuses and recycles its components as much as possible.

To review the primary recommendations of UITP:

Establish a sustained program for direct investment in public transport, in partnership with federal, state and territory governments.

In light of the dramatic infrastructure needs facing public transport systems in the next few years, UITP urges the Committee to recommend that the federal government develop a sustainable investment program to meet the current and planned needs for urban mobility.

For a new public transport investment program to meet these needs it must:

- be designed to address the issues in both large urban areas and smaller communities;
- cover both renewal and expansion needs;
- allow individual communities and public transport systems the ability to address their own unique needs in the most appropriate fashion;
- be a sustainable source of funding that provides a reliable stream of funds;

A share of the federal government's gasoline excise invested in public transport, could certainly support the principles listed above.

Moreover, it is important that this level of investment be permanent in order to allow public transport systems to carry out the necessary comprehensive and long-term planning for renewal and expansion.

Amend the Income Tax Act to eliminate the inequity between employment benefits for drivers and public transport users, make employer provided transport benefits tax-exempt.

Most Australian automobile commuters receive subsidised parking from their employers, but most do not pay tax on those benefits. Meanwhile, an employee who enjoys the benefit of employer-subsidised public transport fares must pay tax on it. This pricing distortion helps to preserve the regime of car dependence that threatens the financial, social and environmental health of our cities.

The amendment of income tax legislation has been a long-standing objective of UITP and its members, as well as the Australian Passenger Transport Alliance. The United States made a similar move decades ago, with resounding success – and it is time for Australia to learn from that experience. It is an important step that would cost little to implement but would, over time, become a major stimulant for new public transport patronage.

Enhance the existing AUSLINK Policy with additional funding allocations.

Due to the serious nature of municipal infrastructure requirements, the existing AUSLINK program must be enhanced to include public transport. With the release of AUSLINK, the focus on infrastructure was elevated to become a top priority of the Federal Government. AUSLINK has a top priority to ensure that the thinking and work being done by any one federal department concerning Australia's cities coordinates with activities being undertaken by other federal departments, so that infrastructure investment becomes an 'government-wide' priority.

This way, infrastructure investments in projects not only meet the needs of the local community but also help achieve broader federal objectives in such policy areas as health, environment, emergency response, transportation, innovation and competitiveness.

“A FINAL WORD”

Australia’s cities at the crossroads

At the start of the 21st century, Australia, like much of the developed world, finds itself at a critical decision point.

For half a century, our cities have followed a growth pattern that has only been possible because of readily available, affordable motorised transport. Most of us now live considerable distances from where we work, shop or socialise, but we still manage to get around in reasonable times due to a very effective road system.

Without this easy mobility, our cities would have been quite different – more like the older, more compact suburbs close to our city centres. They would probably also be safer and healthier, because with the motorised, dispersed city has come a distressing road toll and a fall in personal fitness (because travel distances are too great for walking).

Many of us thought that this low-rise expansion could go on indefinitely, but it’s now clear that we were wrong and that we will have to re-engineer our cities over the next few decades. Why is this so?

Firstly, it’s now clear that the age of low-cost energy is coming to an end and that, over the next 10 to 20 years, many of us will not be able to afford to drive the distances that we presently cover.

Secondly, the jury is no longer out on climate change. Unconstrained use of carbon-based fuels is a major contributor to global warming and, for this reason alone, we must moderate our use of oil and coal.

The energy outlook

Half of the oil that ever existed has now been consumed in less than 100 years

All fossil energy sources are finite. They won’t last for ever – in fact, at current rates of consumption, the remaining lives of our oil and gas reserves can probably be measured in decades and their decline will have far-reaching economic effects. For instance, as our own oil fields are exhausted, we will become dependent on imports with significantly increased exposure to price rises through increased demand, currency fluctuations, and the ever-present risk of supply disruptions due to international politics.

We have enough coal to last another century or two, but it’s not really suitable for use in small vehicles and is best suited to stationary power generation

Oil and gas supplies won’t just dry up overnight; they will tail off over several decades and the associated price rises will make alternative fuels more attractive but, within most of our lifetimes, we will see major reductions in the availability of fossil fuels.

The climate outlook

Even if our oil, gas and coal reserves were limitless, we would still have to confront the need to limit their use. This is because the atmosphere can no longer absorb the products of their combustion. If we don't find a way to prevent the release of greenhouse gases, or move to alternative non-greenhouse energy sources our climate will be destroyed forever.

At present rates of consumption, we are looking at tangible global warming by mid-century. And consumption is increasing as the major economies of China and India expand and develop.

In spite of the rhetoric from governments around the world, current responses to climate change will, at best, only moderate the growth in greenhouse gases.

Recapture of some of the products of combustion has been proposed as a way of enabling the continued use of carbon-based fuels, but that is a formidable engineering challenge for fixed power stations, let alone moving vehicles and aircraft. And it remains to be proven that gases like CO₂ can be captured and contained in the quantities that they are being generated.

Where do we go from here?

It's easy to look back but harder to look forward

Clearly we can't go on living as we do, given the twin challenges of fossil fuel depletion and climate change. But, if we are to achieve a more sustainable environment, profound changes will be needed in the way our cities are structured and how they operate. In respect of transport, we must find ways to reduce the distances that we travel and a range of travel options that depends less on burning oil.

Let's consider the changes that might be necessary.

Typically, in Australian cities, 70% to 90% of journeys are made by car, 5% to 10% by public transport and the balance by other modes such as walking and cycling.

A more energy-efficient city should have major development concentrated in regional centres and along the transit corridors that connect them; lower-density areas should be within 10 to 15 minutes walk of such a corridor. Within such a structure, individual vehicle use should be reduced because of the lesser distances travelled but, inevitably, with increasing fuel costs, we would still have to look to a better balance of transport options.

The major proportion of transport infrastructure investment over the last 50 years has been in our arterial road and motorway systems and it has given us a greatly enhanced lifestyle. This seemed like an appropriate solution at the time, but, we now know that it came with environmental and social costs that weren't fully appreciated. However, the existence of this infrastructure presents opportunities for a better-balanced transport system because, in future years, it has the potential to accommodate the transit corridors that we will need in the places where we will need them. Over time, it should be possible to make better use of existing road space by adapting it to accommodate systems such as light rail or bus rapid transit.

What will distinguish future transit systems though, is that they will almost certainly operate on electrical power from the grid. This is because almost all of the alternatives to oil and gas lend themselves best to centralised generation. This is true whether they be based on hydro, wind or geothermal power, on 'clean' (i.e. CO2-sequestered) coal, or even on nuclear power.

Hydrogen fuel cells, might well offer a mobile form of electrical energy but it should be remembered that they emit water vapor which is, itself, a greenhouse gas. This, combined with the challenges of distributing, dispensing and storing hydrogen, suggests that fuel cells are unlikely to be as viable as is oil as a mass market power source. In the long run, though, fuel cells should have practical applications in larger vehicles such as buses, coaches and road freight.

An interesting recent concept is for vehicles powered by compressed air; these are clearly emission free and can be recharged by electrically-powered compressors.

So the core of our transport system in 30 to 50 years time is likely to be a comprehensive, city-wide transit system powered by electricity. To accommodate this, we must start planning now. No urban planning strategy which claims to look more than 10 years ahead can be accepted if it ignores the twin inevitabilities of oil depletion and climate change.

What needs to be done?

It's time to start planning for a better-balanced portfolio of travel options. The combination of private cars and public transit systems needs to be optimised to ensure efficiency and sustainability for future generations. First, we need to identify and reserve future transit corridors. Second, we need to set firm agendas for their development and establish budgets for the transport infrastructure, the rolling stock and the services that they will accommodate. Third, we must take steps to preserve existing transit corridors, both heavy rail, light rail and busways and set clear goals for their future development.

Effective road-based transit requires multi-unit vehicles, at-grade boarding facilities, off-vehicle ticketing, and effective scheduling.

Given the magnitude of the changes needed to our transport systems to suit our future city structures, we also need to think about the institutional arrangements that can provide infrastructure, energy distribution systems and services.

Clearly, a closer relationship will be required between the roads authorities, which are best placed to manage the civil and mechanical engineering issues, and the public transport agencies which have the mass transit experience. Both road and rail industries have expertise in intelligent transport systems. Clearly some redefinition of charters will be desirable as the boundaries of their activities merge. Naturally, these agents must work hand-in-hand with the land-use planners.

This is not Transit Oriented Development; it is Transit *Integrated* Development and it needs to start soon. Importantly, it needs to be tackled on a region-wide basis – piecemeal plans driven by local ad hoc opportunities should be avoided at all costs.

Funding issues

There is always justifiable concern about where the money will come from to fund major strategies, especially those that are likely to extend over decades. Firstly, we should not overlook the funds that are already being invested in transport but which are, at present, mode-specific. We cannot continue to separate funds in this way if we are to develop a unified transport system – the pie is going to have to be cut differently. In future, public funding must be combined into one pool and allocated between transit and roads according to need as demonstrated by cost-benefit analysis. Another prime source of infrastructure income can be obtained by capturing some of the increase in land value that will accrue from the consolidation of commercial centres and the development along the transit corridors – this has been a popular and painless way of funding transit infrastructure in places such as Hong Kong and Curitiba; in a smaller way, it has happened in Australia through development of airspace over transport interchanges.

It is also now clear that there is a place for road congestion charging provided that the income is 100% dedicated to public transport improvements. London's CBD cordon charge has been an outstanding success in this regard, clearing the roads for better environmental and economic benefits.

There is ample evidence that, where the patronage is adequate and predictable, there is an appetite for private sector investment in infrastructure and rolling stock. But there is also a need for public money and, sooner or later, governments must face up to the need to transfer investment from roads to transit.

User charges are important both on the road and in transit systems, but the cost recovery of the roads system is far superior. Governments generally do their utmost to offer attractive concession fares because, in our car-dominated travel system, many transit users include a disproportionate number of young people, seniors and people on low incomes. In a more balanced transport environment, the proportion of full fare payers should increase, improving cost recovery and increased patronage should enable economies of scale that also improve cost recovery.

It is also important to reconsider how people pay for their car use in order to level the playing field between private vehicles and public transit. At present, car use requires some major up-front annual payments: third party insurance, comprehensive insurance, registration taxes and so on. The day to day cost of travel is then marginal. On the other hand, when we use transit, we pay a fare that rolls up all of the standing charges and collects them on a per trip basis. In this environment, there is little incentive for a motorist to use transit – the rational decision is to get value from the investment in vehicle standing charges.

Add to this, in the case of company cars, a fringe benefits tax regime that reduces the tax payable, the more one drives and it is easy to see that transit is at a disadvantage.

Australian governments need to address these distortions if we are to pave the way for a more use of transit. Technology is now available to charge for road use by the kilometre (and to increase the charges at times of peak congestion. In Europe, insurance companies are trialling systems that charge premiums according to the use of the vehicle through the installation of GPS-linked on-board recorders. We also note that, to all intents and purposes, road use taxes

can be easily collected for light vehicles at the petrol pump, with the added advantage that charges can be structured to encourage use of energy-efficient and environmentally-friendly models.

Our Plan

UITP submits that the most important issue confronting Australian urban life is the coming squeeze on energy. Whether it's through depletion of reserves or usage restrictions to limit climate change, we need to be ready for the changes that must be made over the next 10 to 25 years.

For a sustainable future, each Australian city must have a clear plan for how it will overcome its fossil fuel dependency and be functional into the future. The research indicates that there is strong support in the community for diversion of investment to transit; this is perhaps the single most important issue in the sustainable transport discussion at this time.

Each plan must include:

1. Improving city design by limiting further low-density sprawl and encouraging more compact urban layouts that can be supported by transit systems.
2. Clearly setting out the costs of alternative travel options including the costs of congestion, energy, air pollution and health, then getting the pricing right.
3. Reserving new corridors for transit, and protecting the existing corridors, to allow the provision of quality, high-frequency services that maintain mobility within defined energy and greenhouse budgets.
4. Providing quality alternatives to travel by private automobile.

This requires clear urban planning strategies which look more than one or two election cycles ahead. There is a need to develop an urban strategy in each city and to stick to it. In our bipartisan political system, that means getting support from both sides of the political spectrum. It also means getting buy-in from the Commonwealth government which still seems to have little interest in the internal affairs of our cities notwithstanding that 85% of Australians live in there.

The benefits of getting our transport systems right include a cleaner environment, less dependency on dwindling fossil fuel resources, lower travel times and, by freeing up road capacity, a more efficient freight sector.

Annex to UITP Submission to the Inquiry into Australia's Future Oil Supply and Alternative Transport Fuels (February 2006) - Response to Recommendations of the Sustainable Cities Inquiry from the House of Representatives Standing Committee on Environment and Heritage (August 2005)

The House of Representatives Standing Committee on Environment and Heritage (SCEH) *Sustainable Cities Inquiry* in August 2005 made thirty two (32) recommendations of which eight (8) potentially have direct implications for governance/ policy framework and long term transport planning for public transport operations.

These Recommendations are relevant to the current Senate Inquiry into Australia's Future Oil Supply and Alternative Transport Fuels.

Historically Federal Governments, apart from a few notable examples, such as the *Better Cities Program*, have been reluctant, in the national interest, to become involved in urban development, infrastructure funding or national planning control mechanisms to ensure more "sustainable cities."

This Federal reluctance to establish policy directions leading to public and/or private investment in public transport systems that will place less demand on non renewable oil supplies is a key issue for the current Senate Inquiry.

The SCEH Report noted over two thirds of Australians live in cities served by some form of public transport. This critical fact is central to consideration of options for an increased role for all modes of public transport to reduce fuel demand.

With respect to **Governance and Policy Framework - Recommendations 1, 2 and 3** pertaining to establishment of an *Australian Sustainability Charter*, a Sustainability Commissioner and establishing mechanisms to allocate Commonwealth and State funds according to agreed sustainability targets, UITP recommends the following items for inclusion in this *Charter*:

- Objectives to ensure reduced future demand for oil based products used in all transport systems serving existing urban areas and/ or intensification of these urban areas and new urban developments;
- Establish transport mode share objectives for urban developments with preference to fuel efficient modes based on sound urban planning/ transport integration principles;
- Link planning development approval processes with fuel demand reduction criteria and greenhouse emissions;
- Link funding regimes with fuel reduction targets;
- Link taxation reform with fuel reduction targets, including private investment in more fuel efficient transport modes and/ or development of existing/ new urban areas;
- Link reducing fuel demand principles with other environmental benefits such as greenhouse reduction, climate change targets, health benefits etc

With respect to specific Transport Recommendations:

Recommendation 5: *"extend the Roads to Recovery Program to include other modes of transport as a step towards including sustainability in the funding criteria."*

Public transport offers considerable environmental, air quality/greenhouse, fuel saving (electric heavy/ light rail offers the opportunity to make cities less dependent on the rising cost of imported fuel) and urban form advantages over car based road transport. The distributive role of buses to serve local urban areas is also critical to a comprehensive public transport package – to provide the consumer with real choice.

The inclusion of sustainability criteria in funding will enable a more balanced approach to allocation of federal funding for investment in transport infrastructure, potentially in favor of heavy/ light rail and supportive bus systems.

The sustainability criteria must also be reflected in taxation concession policy issues. Investment in fuel efficient modes should attract tax concessions/ benefits whereas investment in non fuel efficient modes should attract tax penalties.

The same tax principle could apply to location of urban development relative to non-motorised public transport to ensure location efficient urban investment to minimise fuel demand and maximise public transport patronage on existing and/ or new networks.

Recommendation 6: *“transport planning infrastructure decisions be benchmarked against the recommended Australian Sustainability Charter” and “the Australian Government significantly boost its funding for public transport, particularly light and heavy rail in major cities.”*

In NSW a major program of urban rail reliability amplification (Rail Clearways) and expansion (NWRL, SWRL and Harbour Link) is underway. However, funding support from the federal government to bring forward some of these projects under the auspices of the future Australian Sustainability Charter (or any other federal legislation to reduce demand for fuel) and associated benchmarking would be advantageous to ensure decreased future demand for fuel.

Federal government funding arrangements/ recommendations should focus on urban transport, rather than the existing narrow funding an urban road program.

There is long history of federal/ state agreements on joint funding arrangements eg health, roads – perhaps it is time for similar agreements on urban public transport funding?

Previous federal programs such as *The Better Cities Program* explored these opportunities.

Under an appropriate federal sustainability benchmarking process the sustainable advantages of public transport systems on environmental, efficiency of the city (encouraging urban consolidation), intense use of scarce high return urban land and the accessibility aspects of heavy rail taking many people to places of employment stand out.

Recommendation 7: *“funding specifically for sustainable public transport infrastructure for suburbs and developments on the outer fringes of our cities.”*

To be operationally robust this funding would need to focus on existing major urban centres around the periphery of our major cities eg Penrith, Campbelltown in NSW and include funding for increased bus/ rail interchanges (with appropriate

urban development around these interchanges to minimise the multi purpose trip) and amplification of rail infrastructure as required.

Opportunities would also need to be taken to involve the private sector in integrated bus/ rail commercial centre designs such as Parramatta. This will ensure these public transport precincts become places that people wish to frequent not only to catch trains and buses but as places of employment and recreation that minimise the use of the motor car.

Similar opportunities for federal funding initiatives should be also taken with, for example, the proposed NWRL and SWRL currently under planning by RailCorp and the Department of Planning on behalf of the NSW Government.

Recommendation 8: *“the Australian Government review the current FBT concessions for car use with a view to removing incentives for greater car use and extending incentives to other modes of transport.”*

Advocating the removal of current FBT concessions for car use has been proposed a number of times

Currently the further you drive the less FBT (pre tax earnings) you pay.

This is “non-equitable” for public transport users who pay fares from post tax earnings.

Evidence at the SCEH Hearings suggested around 50% of the cars on the road enjoy a FBT (or other tax) concession. The impact on road congestion, loss of public transport mode share are issues which the federal government should review as a matter of urgency for direct input into the current Inquiry.

Reform of FBT provisions in favor of public transport would potentially encourage private sector investment in public transport infrastructure through increased ridership.

Similar provisions existing in the USA for employer provided tax incentives to ride public transport to/from work has increased ridership by up to 10%

This recommendation would have its best effect when used in association with the recommendations for funding/policy changes above.

FBT concessions transferred to public transport are likely to induce demand for public transport leading to private sector development and investment in infrastructure, supported by more appropriate land use and supporting (bus) transport and less fuel consumed.

Recommendation 10: *“the Australian Government provide adequate funding ... for TravelSmart... that promote and support public transport options.”*

TravelSmart, an individualised public transport marketing program, has been working well in many States/Territories of Australia, albeit from a low funding base.

This is a low cost way of encouraging on a local basis (often niche marketing approach) to encouraging people to use public transport, where surplus capacity exists on services. It would be even more successful in association with FBT tax

changes and infrastructure upgrades when capacity is enhanced or new services are provided.

Results of up to 15% increase in patronage have been experienced in areas where *TravelSmart* has been applied.

REFERENCES

This Paper has been prepared with the kind support of UITP (Australia/New Zealand) sixty two (62) members and the UITP Head Office in Brussels, Belgium, representing 2700 members in 85 countries of the world.

- SEAMLESS MOBILITY, February 2005, UITP MOBI+ Research Centre
 - URBAN LAND, February 2003; R T Dunphy
 - INTERNATIONAL RAILWAY JOURNAL, May 2005, D Briginshaw
 - PASSENGER TRANSPORT, February 2003, American Public Transportation Association
 - PUBLIC TRANSPORT IN A CITY ON THE MOVE, June 2000, J R Caldwell
 - RAILWAY GAZETTE METRO REPORT, June 2003, Supplement to Volume 159
 - TICKET TO THE FUTURE – 3 STOPS TO SUSTAINABLE MOBILITY (UITP), March 2005
 - THE CONTRIBUTION BY THE RAILWAYS AND PUBLIC TRANSPORT TO A SUSTAINABLE FUTURE, UNIFE, UITP, CCFE-CER-GBE, UIC, June 2005
 - UITP (2005) “BETTER MOBILITY IN URBAN AREAS: PROBLEMS, SOLUTIONS AND BEST PRACTICES
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