A Business Perspective On Climate Change:

How telecommunications permits a shift from accounting to conservation

by **Philip M. Burgess**¹

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There is no denying that **climate change is a hot topic**. It is difficult to pick up a newspaper, listen to the radio or watch the television and not see something about climate change.

And there are many different views on climate change:

- there is evidence that supports the **global warming scenario** along with evidence that disputes it;²
- there is evidence that **man may be causing it** along with evidence that there may be other causes, such as the sun; ³

On the "disputes it" side, see Joel Achenbach, "The Tempest," *Washington Post*, Sunday, May 28, 2006 who reports "As evidence mounts that humans are causing dangerous changes in Earth's climate, a handful of skeptics [such as world renown hurricane forecaster, Professor William Grey] are providing some serious blowback." See also Pat Michaels, former University of Virginia climatologist and author of *Meltdown: The Predictable Distortion of Global Warming by Scientists, Politicians and the Media*. Washington, D.C.: Cato Institute, 2005.

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² On the "support" side, see the reports of the International Panel on Climate Change (IPCC). *IPCC* - *Climate Change* 2007, including: *Climate Change* 2007 – *Impacts, Adaption and Vulnerability; Climate Change* 2007 – *Mitigation of Climate Change; Climate Change* 2007 – *The Physical Science Basis (all found at:* http://www.cambridge.org/browse/browse_highlights.asp?subjectid=710), Cambridge University Press, 2008.

³ For "man is causing it," see the IPCC. For other explanations, see K. Lassen, *Long-term Variations in Solar Activity and their Apparent Effect on the Earth's Climate*, Copenhagen: Danish Meteorological Institute, Solar-Terrestrial Physics Division, Lyngbyvej, 100, DK-2100 Copenhagen, Denmark.

- there is the Al Gore slide show...the movie... and the Oscar that informs of the *Inconvenient Truth*; but there is also "The Great Global Swindle" produced by the BBC and aired here by the ABC;⁴
- there are **policy prescriptions** that ask us to try to **stabilize**, **mitigate or reverse** climate change and there are those that say we should devote our resources to **adaptation**, that it is folly to think that we can control the climate.⁵

But no matter where you come down on any of these political and scientific arguments, a plain fact remains: Right or wrong, governments across the globe – including here in Australia – are advancing new laws and regulations to limit greenhouse gas (GHG) emissions.⁶

Our point of view: We are going to be required to reduce GHG emissions. It is going to happen. So let's be ready.

To give you the punch line up front, we believe that civic leaders and leaders of **business and government should go back to basics on the climate change** issue – back to basic blocking and tackling and not get pre-occupied with red herrings, such as:

For an interesting **adaptation** view, see James S. Trefil, *A Scientist in the City*, New York: Anchor, 1994. Se also, Indur M. Goklany, *Living with Global Warming*, Dallas: National Center for Policy Analysis, September 2005; or Engineering and Public Policy (U.S.), *Policy Implications of Greenhouse Warming: Mitigation, Adaptation, and the Science Base*. Washington, D.C.: Panel on Policy Implications of Greenhouse Warming Committee on Science, 1992.

⁴ Gore, Al (2006): *An Inconvenient Truth*, Bloomsbury London UK; Durkin, Martin (2007): The Great Global Swindle, found at: http://www.abc.net.au/tv/swindle/. See also, Jones D, Watkins A, Braganza K, Coughlan M. (2007): *The Great Global Warming Swindle a critique in* Bulletin of the Australian Meteorological and Oceanographic Society Vol. 20 (http://www.csiro.au/resources/pfxg.html)

⁵ For **stabilize, mitigate or reverse**, see the IPCC report, the Stern Report (UK), and the Garnaut Report (Australia).

[•] Stern, Nicholas (2007): Stern Review on The Economics of Climate Change, Cambridge University Press, found at: http://www.cambridge.org/catalogue/catalogue.asp?isbn=9780521700801 and http://www.hm-treasury.gov.uk/independent_reviews/stern_review_economics_climate_change/stern_review_report.cfm. The report was released by Stern on 30 October 2006.

Garnaut, Ross (February 2008): Garnaut Climate Change Review – Interim Report to the Commonwealth, State and Territory Governments of Australia found at: http://www.garnautreview.org.au/CA25734E0016A131/WebObj/GarnautClimateChangeReviewInterimReport-Feb08/\$File/Garnaut%20Climate%20Change%20Review%20Interim%20Report%20-%20Feb%2008.pdf

⁶ The new Labor Government in Australia is committed to implementing a climate change strategy, that includes carbon caps. See http://www.alp.org.au/media/1107/msloo143.php)
The Department of Climate Change (est. 3 December 2007), delivers programs under the Government's Climate Change Strategy. (See also, http://www.greenhouse.gov.au/), ALP Policy Page: http://www.greenhouse.gov.au/), ALP Policy Page: http://www.alp.org.au/policy/index.php)

- carbon caps,
- carbon trading,
- carbon off-sets,
- carbon accounting schemes,
- carbon taxes, and
- all the other fancy stuff that has come to dominate the public dialogue about climate change mitigation.

Instead, let's look at the climate change challenge the way we would any other development in the business climate. From a business perspective, there are only **two ways to make money in business:**

- increase revenues, or
- decrease costs.

The climate change challenge will serve up **new opportunities to make money** to *some* sectors of the economy and to *some* industries. As we will detail below, the telecommunications industry is one of those. On the other hand, there is hardly an industry or a sector that can not use the climate change challenge as an **opportunity to conserve** – and in many cases to cut costs, at least until mandatory carbon caps are imposed through a taxing scheme of some kind.

Conservation is the big opportunity. By reducing an organisation's use of resources – e.g., reducing energy consumption (not just offsetting energy consumption), paper use, fuel consumption and other significant polluting actions – we stand to benefit from both a commercial and environmental perspective, as shown in Figure 1. Therefore, it makes sense from a pure dollars and cents perspective to conserve resources of all kinds – and especially energy.⁷

Fig. 1: Highest Paybacks from Sustainability Investments 8

Highest Payback Investments	Percent
Energy savings	41%
Waste savings	23
Product innovation	18
Corporate branding	6
Raw materials savings	6
Water savings	6
Total	100%

We view conservation as a major corporate social responsibility. From a principled perspective, our **primary corporate responsibilities** are, first and foremost, to:

- Serve the needs of our customers;
- Increase shareholder value and protect shareholder interests;
- Provide good jobs at good wages;
- Pay taxes and in other ways support the communities in which we operate and the needs of the larger society;

⁷ GHG are generated from a variety of sources, but they come primarily from energy use.

⁸ Source: Corporate Executive Board Research, Survey of Corporate Sustainability Executives, 2007.

- Advance the national interest by strengthening the capacity of the nation's telecommunications nerve centre and providing the nation a foundation for economic growth, productivity improvement, sustainable prosperity, and global competitive advantage; and to
- **Provide good stewardship of the environment** first and foremost by conservation, reducing operating costs, and minimising our environmental footprint.⁹

Despite the clear business imperative to conserve resources, **the climate change debate has become muddled.** First, the challenge of reducing GHG emissions is different for every industry. We are not looking at a one-size-fits-all solution, as shown in Figure 2 below.

Fig. 2: Risk exposure varies dramatically by industry. 10

Industry Sector	Cost as % EBITDA	Within Sector Variance
Electric power	25.2	Exelon @ 1.2%
Multi-utiities	21.4	PG&E @ 0.1%
Speciality chemicals	15.9	Praxair @ 3.1%
Diversified chemicals	10.5	DuPont @ 1.4%
Metals and mining	9.7	Newmont @ 1.1%
Pharmaceuticals	9.0	J'son & J'son @ 0.04%
Surface transport	7.7	CSX @ 2.9%

Second, there are many ways to conserve resources. Let me briefly report what we have achieved through voluntary initiatives to reduce our burden on the environment. During the past year, for example, Telstra has:

- Saved close to 174,000 tonnes of CO₂ equivalent thanks to new and existing projects targeting energy efficiency comparable to the greenhouse gas emissions from around 18,655 Australians homes for a year.
- Planted over **180,500 tress to offset more than 48,000 tonnes of CO₂ equivalent** through an arrangement with our employee's salary-sacrifice vehicles. This was a 100 per cent increase from the previous year and the equivalent of filling the MCG with trees almost 90 times over.
- Halved the number of reams of paper used per employee since 2000/01 15.2 reams of paper per employee to 7.2 reams of paper per employee.

⁹ During the past financial year, for example, Telstra's business activities: supported more than **45,000 jobs**; paid out **\$4 billion in salaries and wages**; paid out **\$3.4 billion in dividends to shareholders** – including more than 1.6 million Australian shareholders; paid **\$1.6 billion in Commonwealth, state and local taxes** including income tax, fringe benefits tax, petrol excise, payroll tax, mechanical aids and motor vehicle registration fees, rental duty payable for rented products, municipal and water rates, land tax and bank accounts debit tax; and **invested several billion in Australia** to extend the build-out the Next G wireless broadband network, continue deployment of ADSL broadband and maintain, repair, and replace network elements owing to age, wear-and-tear and weather events.

¹⁰ Source: Innovest Strategic Value Advisors, Carbon Beta and Equity Performance, 2007.

- **Diverted 18 tonnes of waste printer cartridges from landfill** through the Cartridges 4 Planet Ark initiative compared to 15 tonnes in 2005/06 a 20 per cent increase.
- Operated 10,693 solar powered sites including exchanges, radio terminals, small repeater stations and pay phones, making Telstra Australia's largest private sector user of solar power (if there are larger users, we want to know about them). As an example, we have over 30,000 payphones in Australia where we minimise the environmental impact of meeting electricity requirements by using solar power in remote areas.
- Improved our office recycling rates for bottles, cans and milk cartons by 7.1 per cent. This diverted 338 tonnes of waste going to landfill.
- Reduced the kilometres travelled by our technicians by 5.6 per cent thanks to Global Positioning Systems (GPS) installed in technicians' vehicles. This is an important achievement, especially in view of the fact that Telstra has the largest automotive fleet of its kind in Australia.

What is required is a clear focus on reducing GHG emissions, which can be achieved primarily by consuming less energy, as shown in Figure 3.

Fig. 3: Relative Effectiveness of GHG Reduction Strategies ¹¹

Effectiveness of GHG Reduction Initiatives	Percent
Increasing energy efficiency	84%
Improving manufacturing and distribution	62
Engaging stakeholders in policy discussions	31
Hiring/empowering environmental officer	28
Shifting investments to climate neutral focus	23

Meaningful carbon abatement requires large-scale energy conservation – not just offsets and other accounting approaches that may or may not lead to less energy consumption or the more efficient use of resources. In fact, many companies that aim to achieve "carbon neutrality" actually plan to increase energy consumption and increase GHG emissions.

Telstra's aim is to find ways to resource inputs as a percent of outputs. Therefore, we embarked on a detailed process to see not only what we can do to reduce our carbon footprint within our organisation, but how we can assist each and every sector of the economy and every community and individual reduce theirs.

¹¹ Source: 2007 Survey of Switzer Fellow Scientists, *What the Scientists Know: How business can help solve global climate change.* 2007.

To this end Telstra commissioned climate change experts¹² to investigate how telecommunications networks and digital products can enable business enterprises, households, non-profits, and governments to reduce carbon emissions. The result: An **economy-wide strategy for one industry** – the telecommunications industry – to help meet the environmental and legislative challenges of climate change.

Consider space management which accounts for about 40 percent of energy consumption – including everything from heating and air conditioning to the 'office concierge' and a 'hot-desk' for the telecommuter – the opportunities for energy conservation are huge, as shown in Figure 4.

Fig. 4: Energy Consumption by Facilities ¹³

Energy Consumption by Function	Percent
Heating, ventilation, air conditioning (HVAC)	37%
Lighting	18
IT & office equipment	14
Water heating	10
Other	21
Total	100%

Let me take a step back and explain why Telstra is speaking out at this time on climate change.

There are three main reasons:

- Telstra touches almost every home and business in this country. We are the only company in Australia that can say that.
- Our national coverage means that **Telstra's networks can be leveraged by Australian consumers and businesses** to reduce or avoid carbon emissions.
- We can transform piecemeal and incidental energy saving actions using telecommunications networks and turn them into an:
 - o integrated,
 - o deliberate, and
 - o comprehensive approach with economy-wide implications.

The increasing capacity of **Telstra's next generation networks (NGN) are providing significant abatement opportunities** without geographic limitations. It is non-discriminatory. It doesn't matter whether you are an individual, a household, a school, a small or a big business, a government agency or a non-profit.

¹² See Karl Mallon *Towards a High-Bandwidth, Low-Carbon Future: Telecommunications-based Opportunities to Reduce Greenhouse Gas Emissions.* Sydney: Climate Risk Pty Ltd, 2007. Climate Risk is an independent, Sydney-based professional services consulting organization that analyses risk, opportunity and adaptation issues around climate change.

¹³ Source: World Council for Sustainable Development, *Energy Efficiency in Buildings*, 2007.

Nation-wide availability of virtual desktops, high-definition video conferencing, and accessing a virtual private network remotely are more widely available due to the next generation networks that Telstra has introduced in Australia over the past year.

With advanced telecommunications you can:

- work together without having to be together through teleconferencing;
- go on a field trip without leaving the school grounds via virtual reality technology, such as Second Life; or
- receive a doctor's care without leaving home via telemetry.

New high-resolution video-conferences are replacing many of 'real' face-to-face meetings across Australia and the world. To take a Telstra example, during the course of last year, we held nearly 7,500 video conferences, lasting nearly 20,000 hours, and saved around 4,200 tonnes in our travel-related carbon emissions.

Society has also moved to a place where **everyday people are consuming more and more energy.** Increasing digitisation and affluence are contributing to increasing levels of energy consumption. Mobile phones, computers and TVs are all power hungry – a Plasma TV uses more than twice the power of a traditional TV of the same size.

Household spending for power are fuel is going up. Back in 1988, the average household spent around \$13 a week on domestic fuel and power. Fifteen years later in 2003 that had almost doubled to around \$24 a week.¹⁴

There are also more people in more cars going at slower speeds. An NRMA survey in 2007 found that more than half of Sydney businesses have seen their fleets spend up to four hours longer in traffic each week compared with a year ago. The same survey found that traffic congestion had:

- Increased fuel consumption (60%)
- Increased operating costs (47%)
- Decreased staff punctuality (42%)
- Slowed down productivity (33%)¹⁵

And in Victoria, the morning peak period is now 30 minutes longer than in 2001 and the afternoon peak up to one hour longer. Actual travel speed during the morning peak in Melbourne is 36 kilometres an hour. Usual travel speed during the morning peak in London and I am sure that you can see the parallels.

More plasma televisions, more air-conditioning, more cars on our roads going at slower speeds means higher the energy consumption...higher costs...and higher the greenhouse gas emissions.

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¹⁴ Noting the CPI increased 18% over this period and household income grew 28%. ABS household expenditure survey, summary of results, 6530.0, 2003–04 (re issue), page 10

¹⁵ Source: NRMA website http://www.mynrma.com.au/cps/rde/xchg/SID-3F5768EC-E4C70D38/mynrma/hs.xsl/4719.htm

 $^{^{16}}$ Source: VicRoads website http://www.vicroads.vic.gov.au/NR/rdonlyres/5C2E31EC-4AF1-4468-A325-F52526D373D7/0/vrpin01551.pdf , page 3

¹⁷ Ibid, p.4.

So it is important to find innovative ways to help others – such as commuters – reduce their energy use.

First of all – for the bottom line. The Climate Risk Report finds that by working together, the telecommunications industry can:

- Reduce Australia's total greenhouse gas emissions by nearly 5 per cent an amount that equals the annual emissions of nearly two-thirds of Australia's passenger cars, or the equivalent of turning off every light bulb in Australia for one year and an amount that is enough to meet our Kyoto targets and Stern Report recommendations.
- Together we can **generate financial savings** for Australian businesses and households by up to \$6.6 billion per year

The Climate Risk report responds to the new dynamics anticipated across Australian industry with the expected introduction of a carbon trading scheme.

However, instead of focusing on carbon offsets and carbon neutrality goals, the Report takes a forward-looking, conservation approach. Hence the Report targets seven strategies – or what we call "carbon opportunities" – to avoid or reduce the release of fossil carbon into the atmosphere in the first place. These include:

- Demand-side management to increase renewable energy use
- Personalised public transport
- High-definition video-conferencing
- Presence-based power
- Real-time freight management
- Remote appliance power management
- De-centralised business district (CBD)

Most importantly, these digital opportunities have application not just for Australia but for all nations.

By using telecommunications networks, there are opportunities to reduce Australia's carbon emissions by an amount that meets the Kyoto Protocol target and is in keeping with the findings of the Intergovernmental Panel on Climate Change (IPCC) and Stern Review.

The Report puts solid ideas into the marketplace – seven commercial ideas and strategies – about how we can use telecommunications networks to actually reduce a nation's carbon footprint, most of which are actionable today.

1. Demand-side management to increase renewable energy use

Demand-side energy management helps increase the feasibility of renewable energy ¹⁸ by reducing demand variability. When demand is matched with supply, efficiency goes up and less waste is created.

Many household and business appliances, such as hot water systems, only require intermittent power. If the energy use of such appliances were managed using a telecommunications network, then peaks in demand could be better managed on a national scale without amenity loss.

¹⁸ Listed as Carbon-Opportunity 7 – Increased Renewable Energy

Deep cuts in Australia's total emissions will occur only when renewable energy is able to replace a significant amount of the nation's reliance on coal-fired electric power.

If demand-side energy management of renewable energy is realised nationally, Australia's carbon emissions could be cut by around 10.1 million tonnes each year and save Australia nearly \$86 million in fuel costs a year.

2. Personalised public transport

Three-quarters of Australian commuters drive to work, and road freight alone creates nearly five per cent of national emissions. Imagine personalised public transport ¹⁹, or transport-to-your-door with a phone call, as sending a text message to order a mini-bus to take you from your door to work or to a connecting train.

Fast, flexible, personalised public transport using wireless broadband could help reduce commuter traffic and carbon emissions by an estimated **3.9 million tonnes each year** while also saving Australia around \$1.6 million each year in fuel.

3. High-definition video-conferencing

Global studies show that about half of Australia's domestic travel is for business, with many people travelling to attend short meetings.

Face-to-face meetings are essential to business as the nuances of communication rely on body language and facial expressions as much as the spoken word. Until recently, there was no alternative to another business trip to achieve the face-to-face result. But now, "in-person" high-definition video conferencing²⁰ can provide the same result as sitting in a room together.

Using new video conferencing services in this way could reduce Australia's carbon emissions by up to **2.4 million tonnes a year**.

4. Presence-based power

By using motion sensors²¹ to turn off devices that are "on" but not being used, significant savings can be made. As a person moves out of a room, wireless-based motion sensors can turn off lights, air-conditioners and computers. If this opportunity were realised in households and businesses, it could reduce carbon emissions by an estimated 3 million tonnes each year and save households and businesses around \$270 million each year.

5. Real-time freight management

Freight vehicles are empty 28 per cent of the distances they travel. Wireless broadband can be used to monitor vehicles in real-time so the data can be used to better assign cargo²². This could reduce carbon emissions by an estimated **2.9 million tonnes each year** and save Australia around **\$1.1 billion each year in fuel.**

6. Remote appliance power management

Electricity used at home and work produces 20 per cent of Australia's total emissions. Broadband-enabled network sensors can detect when home appliances, such as TVs are on stand-

¹⁹ Listed as Carbon-Opportunity 5 – Personalised public transport in the Climate Risk Report

²⁰ Listed as Carbon-Opportunity 6 – 'In-Person' High Definition Video Conferencing

²¹ Listed as Carbon-Opportunity 2 – Presence-based power

²² Listed as Carbon-Opportunity 4 – Real-time freight management

by or mobile phones have finished charging. ²³ Sensors can then automatically turn off power to the appliances. If realised, this could reduce carbon emissions by an estimated **1.8 million tonnes each year** and save Australians around **\$170 million annually**.

7. De-centralised business district (CBD)

Networked-enabled homes and regional telework businesscentres can remove or significantly reduce the emissions generated by people travelling to and from their place of work²⁴. Teleworking is a way of reducing auto pollution by moving work to people – not just people to work. By enabling people to work either in or closer to home, Australia could reduce carbon emissions by an estimated **3.1 million tonnes each year** and save around **\$1.2 billion each year** in fuel.

This outline of seven carbon opportunities is significant for three important reasons:

- First, because it quantifies the carbon emissions that can be reduced or avoided though using telecommunications networks;
- Second, because the opportunities identified not only reduce or avoid emissions but save consumers and businesses real dollars; and
- Third, because it shows how Australia's telecommunications industry can play a world-leading role in reducing and avoiding carbon emissions.

It comes down to a choice. There is the 'Business as Usual' approach – which means that emissions will continue to rise while people are still 'talking', "trading" and "scheming" – and not "acting".

A small reduction could be realised through some anticipated government measures to reduce emissions – such as renewable energy targets – which is a positive step yet a mandated one.

But importantly, through conservation, innovation and a telecommunications network that touches every household, business and enterprise in this country, dramatic reductions in the use of energy and other resources can be realised.

Climate Risk estimate that through these actions we can reduce Australia's total greenhouse gas emissions by 4.9 per cent over five years, and generate financial savings for Australian businesses and households by up to \$6.6 billion per year.

As I indicated at the beginning, we need to look at climate change from a business perspective. **A business perspective means conservation.**

My CEO, Sol Trujillo, personally endorsed the Climate Risk report. Sol is a businessman. He cares about the environment but also cares about jobs, revenue growth and innovation in our businesses and products. He cares about customers and shareholders. That's why he endorses an approach that encourages conservation. That's why he promotes conservation in every aspect of our business, taking advantage of many of the successful management approaches used around the world, as shown in Figure 5.

Fig. 5: Effective management of sustainability initiatives ²⁵

A. Location of Sustainability Leadership	B. Location of Sustainability Leadership -	A-B
ranked by "effectiveness" –	ranked by "frequency"-	
1. Office of the CEO (67%)	1. Office of the CEO (36%)	_

²³ Listed as Carbon-Opportunity 1 – Remote Appliance Power Management

²⁴ Listed as Carbon-Opportunity 3 – De-centralised Business District

²⁵ Source: Corporate Executive Board Research, Survey of Corporate Sustainability Executives, 2007.

1. Corporate Responsibility (CSR)	2. Corporate strategy	+2
1. Supply chain executive	3. Environment, health & safety	+2
1. Environment, health & safety	4. Corporate Responsibility (CSR) officer	-1
1. Corporate strategy	5. Supply chain executive	-3
Decentralized in business units	6. Decentralized in business units	_
Cross-functional task force	7. Cross-functional task force	_
Corporate communications	8. Corporate communications	_
9. CTO	9. CTO	_
10. Real estate	10. Real estate	_
11. Legal	11. Legal	_

Using the tangible opportunities identified in this Report, Telstra and its business customers can reduce carbon emissions without financially penalising the consumer – which means that **greenhouse gas reduction and commercial imperatives work together** providing, in effect, a win-win-win – good for business, good for the environment and good for the consumer.

Of the opportunities I have outlined today, most are available while some are just starting to evolve towards mass market availability. But each deserves consideration if we are to **comply with legislation and regulation** that is clearly on the horizon, if we are to **shape legislation and regulation** that will incent desired attitudes and practices, and if we are to **satisfy customers who increasingly want to know how we are doing our part to reduce GHG emissions.²⁶**

This Report is a first step; it is by no means the end of the story. What it clearly shows is how offsets (the accounting alternative) is not the way to reduce carbon emissions. You reduce carbon emissions by conservation, by using less energy, less water, less paper, and the like.

I encourage you to read the report, which is on the Telstra website²⁷ or the executive summary that has been provided today.

We welcome your feedback and look forward to seeing what can be achieved by shifting attention from accounting schemes to conservation – the real way to reduce GHG emissions.

Like the old story from the welfare debates – there is no jobs program like a job – the same goes for mitigating the effects of GHG on climate change: There is no approach to reducing GHG emissions that beats conservation.

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²⁶ My colleague Chloe Munro, executive director for innovation projects, has a portfolio that includes identifying opportunities for new products and services related to the seven "carbon opportunity" strategies noted earlier. Her colleague in this initiative is Linda McGregor.

²⁷ See http://www.telstra.com.au/abouttelstra/media/announcements article.cfm?ObjectId=40778 For the podcast upon the release of the report, *Towards a High-Bandwidth*, *Low Carbon Future:*Telecommunications-based Opportunities to Reduce Greenhouse Gas Emissions, see http://www.telstra.com.au/abouttelstra/media/podcasts.cfm?ObjectID=81