

## **USING TELECOMMUNICATIONS TO REDUCE YOUR ORGANISATION'S CARBON FOOTPRINT**

Dr. Turlough F. Guerin

Group Manager Environment, Telstra  
L33/242 Exhibition St, Melbourne 3001  
Email: [turlough.guerin@team.telstra.com](mailto:turlough.guerin@team.telstra.com)

It's now common knowledge, that the ICT sector contributes 2% of global emissions. Projected growth in this sector means that we can expect to see this increase to 3% by 2020<sup>1</sup>. That's not much when compared to other sectors, and in fact the telecommunications sector as a whole is a relatively small emitter. That said, on a global basis, that's the equivalent of three times Australia's current greenhouse inventory<sup>2</sup>.

However, is fair to say that telecommunications is less a cause of the problem, than a big part of the solution. In 2007, Telstra released a report, *Towards a High-Bandwidth, Low-Carbon Future*<sup>3</sup>, in which we estimate that telecommunications could reduce Australia's greenhouse gas emissions by as much as 5 per cent per annum by 2015.

For the next 7 minutes I am going to share with you how the telecommunications sector, and Telstra specifically, has a critical role in reducing greenhouse gas emissions and combating climate change, and using three example, why smart applications that can run on a high-speed, widespread-broadband network will be the key to unlocking a low-carbon future and to enable leveraging of emissions reductions both inside and outside our sector.

We're at a cross-roads. As professionals in the ICT industry, we can contribute to the projected 3 per cent of global emissions by designing, building, implementing new IT systems that continue to demand higher energy consumption. Or we can seize the opportunity that the ICT sector offers. What the ICT sector offers is its leveraging ability to reduce greenhouse gas emissions not only of the sector itself, but across all parts of the economy. It's an enabler.

Let me explain. The ICT industry is a large consumer of energy [and therefore a significant source of carbon emissions], it can also leverage or enable emissions reductions across its own and other sectors of the economy. This leveraging can be as high as 9 times.

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<sup>1</sup> 1.54 giga tonnes (Gt) of greenhouse gas emissions reported in the October 2008 McKinsey report "How IT can cut emissions"

([http://www.mckinseyquarterly.com/How\\_IT\\_can\\_cut\\_carbon\\_emissions\\_2221](http://www.mckinseyquarterly.com/How_IT_can_cut_carbon_emissions_2221))

<sup>2</sup> Estimated at 576 mega tonnes (Mt) by the Australian Federal Government Department of Climate Change (<http://www.climatechange.gov.au/inventory/2006/index.html>)

<sup>3</sup> "Towards a High Bandwidth Low Carbon Future"  
([http://www.telstra.com.au/abouttelstra/csr/climate\\_change.cfm](http://www.telstra.com.au/abouttelstra/csr/climate_change.cfm)).

So for each tonne of greenhouse gas the ICT industry produces, that is through powering servers, data centres, networks, etc, it can leverage a reduction or avoidance of up to 9 tonnes across the economy<sup>4</sup>.

The way it does this is through low-emission “virtual” alternatives, systems and technologies that substitute for physical products and services. In Telstra, we are already using this leveraging through our product and service offering. That is, smart, low-carbon applications that run on a high-speed, widespread, broadband networks.

Consider for a moment what we are enabling our customers to do right now. I am going to talk about three examples.

Firstly, we are enabling the efficient deployment of field work forces, linking field staff to jobs in the shortest possible time with least travel distance using Trimble Geo Manager. Let me explain.

Trimble GeoManager is a product offered to our enterprise and government customers to improve the efficiency of deploying their field work forces and fleets. This product relies on field staff being connected via wireless broadband. It uses GPS technology with the additional feature that it sends a regular positioning signal to a satellite. It finds the shortest distance between jobs so work can be scheduled in the most time-effective and spatially-efficient way. It therefore allows work schedulers to match the closest field staff, who have the needed skills, to the next nearest job.

We use this product in Telstra. Trimble is now reducing our travel kilometres between field jobs by 5.6 per cent. When running a large field work force and vehicle fleet like ours, this equates to millions of litres of fuel saved each year. But the greatest value in implementing Trimble has been the recovery of lost time from the field workforce. Telstra has seen an increase of 13.3 per cent productivity in the field work force since installing Trimble in the past year alone. The implications of this study are huge as the ABS tell us 28% of all commercial road transport vehicles are running empty. That is, every one in three semi trailers on our roads are travelling empty.

Secondly, through fixed and wireless broadband we are enabling flexible working for “knowledge workers”<sup>5</sup>. This is saving our customers in time and travel. More importantly from an environmental perspective having a significant number of the workforce working remotely saves in office space<sup>6</sup>, which is a large contributor to running costs and to a business’ carbon footprint. Did you know that if the average Australian employee teleworked even three days a week, and companies consolidated company office space as a result, this would lead to savings of 1.6 tonnes of greenhouse gases per teleworker?<sup>5</sup>

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<sup>4</sup> Assumes 3 Mt emitted by the telecommunications sector in Australia (Telstra contributes to 50% emitting 1.5Mt). Reported by Turlough Guerin in “Smarter, Greener, Together: Towards a High-bandwidth Low-carbon Future” presentation to the *2nd Annual Climate Change Summit*, 23-24 July 2008, Darling Harbour, Sydney.

<sup>5</sup> Loosely defined as staff able to work flexibly and excludes the field work force.

<sup>6</sup> Sun Microsystems have saved an estimated \$64 M in office space from real estate consolidation from presentation by Angus McDonald, CTO Sun Microsystems Australasia at Symposium on Sustainability of the Internet and ICT, The University of Melbourne, November 25 & 26, 2008

If Australia's knowledge workers adopted this strategy, we could reduce greenhouse gas emissions by more than one and a half million tonnes<sup>7</sup>. And it would also enable us to remove hundreds of thousands of cars off our roads. The Bureau of Transport and Regional Economics have estimated that traffic congestion alone to be costing this country 9 billion annually<sup>8</sup>.

In my final example, we are enabling replacement of business air travel with high definition in-person, video conferencing. The technology of the video conferencing industry has undergone rapid advances over past 12-24 months. And broadband speeds have increased with the roll out of Telstra's Next G network. The video conference experience is now very real, smooth and sharp, without the stilted delays and fuzzy pictures that characterised earlier experiences. Companies are now investing in these technologies which enable them not only to be more productive but enable them to set bold air travel reduction targets.

In closing, these examples represent transformational change: Increased productivity, reduced cost, reduced fuel and energy use, and reduced greenhouse gas emissions.

And these are just 3 examples of where the ICT industry is leveraging reductions in greenhouse gas emissions [attached table provides a range of such services provided by Telstra<sup>9</sup>]. But the reality is that the ICT industry will continue to increase its contribution of greenhouse gas emissions to the atmosphere. Our challenge is now to develop further the other low carbon opportunities and build the networks that enable these emissions reductions to be achieved.

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<sup>7</sup> Based on the findings from Telstra's commissioned study "Teleworking Life Cycle Analysis" 2008 conducted by URS. This study dispels the myth that when companies deploy teleworking they are outsourcing their emissions to the staff members home as the results report a net environmental benefit from teleworking under the conditions used in the modelling which were representative of typical office and home conditions.

<sup>8</sup> Bureau of Transport and Regional Economics ([www.bitre.gov.au](http://www.bitre.gov.au)).

<sup>9</sup> Published in the Telstra Corporate Responsibility report (2008)  
(<http://www.telstra.com.au/abouttelstra/csr/reports.cfm>)

Issue	Solution	Product / Service example	Travel/Fuel Reduction	Energy Reduction	Additional Information
Conferencing & Collaboration - Remote & Virtual	Video Conferencing	Tele Presence & Real Presence	✓		Top of the range / state of the art video conferencing.
	Video Conferencing	Medium & High Definition	✓		Enables virtual face to face meetings and supports larger numbers of attendees.
	Video Conferencing	Desktop Video Conferencing	✓		Desktop solution for individual face to face meetings with high quality images.
	Web Conferencing	Web Ex	✓		Enable sharing of applications and hands on visual/verbal collaboration.
	Virtual Contact Centre	Web Contact Centre	✓		Supports a virtual contact centre that links all forms of communications whilst able to run on any connectable desktop PC allowing a physically diverse staffing and reduced travel and also office space impacts for home workers.
	Remote Working Solutions	iPass Global Virtual Network	✓		Provides secure managed access to corporate businesses supporting employees working remotely and enabling reduced travel.
Telemetry	Remote Telemetry	Remote Telemetry	✓		Remote monitoring and control of metering and specific application devices anywhere (and everywhere) in the country enabling reduction in travel.  Additional environment benefits depending on application such as water reductions when used for water management.
Vehicle Routing & Management	Field Workforce Solutions	Trimble Enterprise Mobility System (EMS)	✓		Various applications for field force management to streamline field work including job allocation and route planning.
	Whereis® Navigator	Whereis Navigator	✓		Smart travel planning means efficient routing to help prevent unnecessary fuel use.
Network Infrastructure	Telstra Next IP™ Network	BigPond, Velocity (FTTP)	✓		The Telstra Next IP™ network is one of the world's largest, fully integrated national IP networks in the world.
	Telstra Next G™ Network	Flexible Personalised Transport Solutions	✓		Leading edge wireless network that underpins not only Telstra's but an extensive range of third party products & services.
	Virtualisation	Consolidation of customer server managed by KAZ (part of Telstra Enterprise & Government)		✓	Enhancing utilisation of servers enabling energy and cooling costs to be reduced.

## **Author Biography**

Dr Turlough Guerin is an environmental professional who has worked in corporate environmental management roles in Rio Tinto, Shell and most recently as the Group Manager Environment for Telstra. Telstra is Australia's leading telecommunications and information services company with one of the best known brands in the country. Telstra has been voluntarily reporting its carbon emissions for 8 years. Through its cumulative energy efficiency initiatives over this time, the company has delivered \$14 M in avoided energy costs in the past financial year. Turlough's experience includes identifying and managing risks and opportunities in relation to climate change, as well as corporate environmental policy development, strategy, disclosures, auditing and contaminated land management and divestment.