Tackling Environmental and Social Challenges with Technology

Materiality Assessment Topic: Products that enable social & environmental benefit

Issue Summary

Companies today operate in an increasingly complex economic, social and technological environment. Information and Communication Technology (ICT) solutions — comprising hardware, software, and broadband and wireless technologies — can enable people and businesses to make more energy-efficient choices and reduce environmental impact and costs by:

- Moving work to people rather than people to work
- Connecting rather than traveling
- Managing business remotely and in real time
- Improving transportation and distribution systems

Our Position

The power of the network has never been more important to help companies adapt to these new conditions, optimizing ICT solutions, processes and people across the entire value chain. By using ICT solutions to establish and improve collaboration platforms — regardless of location, application or device — a connected business will make its workforce smarter and more productive, dramatically improving its underlying network of functional communities and fundamentally redefining and enhancing its internal, customer and partner relationships. ICT can help improve business performance, making companies leaner, more flexible, more adaptive and more sustainable.

ICT solutions have great potential to enable others to operate more sustainably. As a provider of these products and services, AT&T is committed to not only deploying them but also to educating businesses and consumers about the potential savings — both financial and environmental — that they could achieve.

According to the Global e-Sustainability Initiative (GeSI) SMARTer 2020 report, the ICT industry has the potential to create emissions abatement of 9.1 Gigatons of CO_2-e (carbon dioxide equivalents) by 2020.[1] This is equivalent to the emissions from the electricity use of over 1.3 billion houses in a year, more than seven times the emissions associated with ICT operations.[2] The report also calculates that the savings could amount to over $1.9 trillion in gross energy and fuel savings by year 2020.

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[1] GeSI, SMARTer 2020 report, http://gesi.org/SMARTer2020
[2] EPA emissions calculator: http://www.epa.gov/cleanenergy/energy-resources/calculator.html#results

Data Highlights

2012 Goal	Progress Toward Goal
Identify connection opportunities that drive efficiency and sustainability for customers in the healthcare, tracking transportation and home energy sectors.	We announced several new technology solutions to increase the efficiency and sustainability of our customers, including tools related to electric vehicles, patient health records and enabling the next generation of smart homes.

2013 Goals

- Drive awareness and market adoption of ICT solutions for both enterprise and state/local government entities by defining the increased efficiencies, performance and competitive advantage these products create.
- Launch a platform that will empower our customers to understand and manage their home security and energy usage remotely.

Our Action

SUMMARY

Our products and services can enable customers to operate more sustainably and save money. We continue to work with credible third parties to quantify those benefits.

Overview			
We worked with…	To analyze the environmental impact of…	And identified potential environmental savings by 2020…	And potential financial impacts by 2020 of…
Global e-Sustainability Initiative (GeSI)	The ICT industry	9.1 gigatons of CO_2-e	$1.9 trillion
CDP & Verdantix	Cloud computing	85.7 million tons of CO_2-e annually[3]	$12.3 billion in energy savings alone[4]
CDP & Verdantix	Telepresence (in place of some travel)	5.5 million metric tons of CO_2-e[5]	$19 billion[6]
Carbon War Room	Machine-to-machine technology (M2M)	9.1 gigatons of CO_2-e[7]	Almost $1 trillion[8]

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[3] Based on U.S. businesses with annual revenues of more than $1 billion spending 69 percent of infrastructure, platform and software budgets on cloud services.
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[5] U.S. and U.K. businesses with annual revenues of more than $1 billion deploying a total of almost 10,000 Telepresence units. Savings start accruing in 2010.
[6] U.S. and U.K. businesses with annual revenues of more than $1 billion deploying a total of almost 10,000 Telepresence units. Savings start accruing in 2010.
[7] Savings estimated for all ICT technology.
[8] Savings just for M2M technology.

We are also working directly with other technology and service providers to create innovative solutions for our customers. Some examples follow:

Transportation	*Ford*	Ford engages AT&T to connect its vehicles to routing information, battery charge status and nearest charging station information.
	SoBi	Social Bicycles uses AT&T services to provide interactive and dynamic bicycle sharing.
	Zonar	Trucking fleet technology uses AT&T connectivity to monitor truck maintenance needs and increase fuel efficiency.
Tracking	*Amber Alert GPS* and *Numera Libris*	Tracking devices that monitor the location of kids, medically-at-risk or the elderly. Devices, equipped with fall detection capability, allow for easy connection directly to call centers in the event of an emergency.

ICT SOLUTIONS

Telepresence

AT&T Telepresence Solution® is a high-definition videoconferencing service that gives provides a virtual, face-to-face meeting experience without the expense and productivity drains of travel. Telepresence allows users to meet with people across the globe as if everyone were in the same room.

Since introducing AT&T Telepresence Solution® in 2008, AT&T has hosted customer forums, accelerated marketing campaigns, streamlined meeting processes and reduced travel through the use of video collaboration. This has resulted in meaningful financial and environmental impacts for AT&T:

	Travel Expense Avoided	CO_2-equivalent emissions avoided
2012	$19.8M	11,600 metric tons
2011	$13.9M	8,300 metric tons
2010	4.1M	2,500 metric tons
Total	**$37.8M**	**22,400 metric tons**

This experience is beginning to validate research into the benefits of Telepresence®. An AT&T-sponsored study by CDP and Verdantix found that by 2020, U.S. businesses with revenues of more than $1 billion can collectively achieve financial benefits of almost $15 billion by substituting telepresence for some business travel and can cut nearly 4.6 million metric tons of CO_2.[9]

Cloud Computing

At its simplest, cloud computing is remotely accessible computing power where customers can keep data or applications. Using the cloud removes the need to store anything on hardware devices. AT&T worked again with CDP to release a study, Cloud Computing: The IT Solution for the

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[9] Carbon calculations were derived by Cisco's IBSG, which uses the TRX Airline Carbon Emissions Calculator for impact of air travel avoidance, along with a standard calculation for the impact of ground transportation avoided to and from the meeting and airport, less the impact of energy usage for the Telepresence® application and carbon start up and disposal. Note: Ground transportation to and from the Telepresence® location and airport were assumed equivalent to participants' normal daily commutes, and thus, offset each other.

21st Century, conducted by independent analyst research firm, Verdantix. It found that by 2020, large U.S. companies that use cloud computing can achieve annual energy savings of $12.3 billion and annual carbon reductions equivalent to 200 million barrels of oil.[10] That's enough to power 5.7 million cars for one year.[11]

AT&T provides a range of utility- and cloud-based solutions that give businesses greater flexibility, speed and control over their IT infrastructure and enables them to better match capacity with application demand. With end-to-end services — including AT&T Synaptic Hosting, AT&T Platform as a Service, AT&T Synaptic Storage as a Service and AT&T Synaptic Compute as a Service — AT&T Hosting and Cloud Services help companies operate more efficiently and respond to fluctuating or hard-to-predict needs.

Learn more about cloud services.

Fleet Management

Smarter transportation tackles inefficiencies by reducing fuel consumption through automated route planning and increased vehicle efficiency through the reduction of idle time, better managing miles driven, adhering to speed rules, monitoring of vehicle acceleration and other strategies. The resulting efficiency gains can deliver fleet-wide performance improvements that can lead to reduced energy waste and greenhouse gas (GHG) emissions. AT&T is one of the largest U.S. wireless providers of fleet management solutions for commercial truck and van fleets.

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[10] Represents the 2,653 firms generating revenues of more than $1 billion in the U.S.
[11] Based on Bureau of Transportation Statistics average mpg, Federal Highway Administration average annual mileage and the Energy Information Agency gallons of gasoline per barrel of oil.

Learn more about transportation management offerings.

Digital Life

This year we announced Digital Life service, an end-to-end solution allowing customers to remotely monitor and control lighting and thermostat controls, smoke detectors and water sensors from multiple devices, including smartphones, tablets and laptops. In addition to giving customers the ability to make their homes and property safer and more secure, Digital Life enables our customers to operate more sustainably by helping homeowners better manage utilities — lowering environmental impact and costs.

Learn more about AT&T Digital Life.

Data Center Efficiency

The ICT sector is responsible for approximately 2 percent of global CO_2 emissions, which is nearly the same as the airline industry, according to a 2012 study by The Green Grid Association. AT&T helps businesses build and operate their IT infrastructure more efficiently — helping them to lower the cost of doing IT business. Current trends toward the adoption of hosted services (e.g., outsourcing and cloud computing), server and storage virtualization and low-energy cooling as a means to replace less-efficient data centers and application services have great potential to increase IT and data center efficiency.

Learn more about Smarter Data Centers.

Telecommuting

Telecommuting, defined as working from home, is one of the most promising opportunities for businesses to cut carbon emissions and it offers a variety of benefits for both companies and employees. It can improve:

- Job recruitment by improving a company's attractiveness to prospective employees
- Access to non-traditional workers by eliminating distance and commuting as barriers to employment
- Job satisfaction
- Work/life balance
- Real estate efficiency

Related to telecommuting is teleworking, or the ability to work virtually from anywhere. Teleworking is a vital component in preparing our nation to respond to unexpected events that prevent workers from reaching their traditional office environment, such as natural disasters, outbreaks of disease or terrorist incidents.

We offer a variety of innovative solutions to facilitate flexible working, including remote access, and conferencing and collaborating solutions such as AT&T Connect®. These technologies can help reduce travel and increase productivity by enabling employees to communicate and collaborate virtually anywhere.

Learn more about how AT&T uses telecommuting in its own operations and how AT&T's Unified Communications solutions can be used to establish telecommuting and teleworking programs.

Smart Utilities

Smart Utilities provide the potential for real-time access to utility data by customers and service providers. These grids allow for two-way communication between the utility provider and end points in the distribution system, including meters at the home or business.

Smart utilities help:
- Enable utilities to read meters remotely without sending technicians

- Provide utilities with the ability to remotely connect, disconnect and reconnect service for customers (e.g., moving homes or non-payment/reinstatement), thereby reducing emissions and saving time and money related to dispatching a truck
- Offer faster and easier outage identification and response, or to correct problems before they lead to outages
- Give customers real-time usage information and adjust their energy or water use accordingly, potentially saving customers money, allowing the grid to reduce usage during peak times and possibly reducing the number of new power plants that must be built
- Provide utilities with the ability to effectively integrate alternative and sustainable energy resources into their networks, potentially saving money and reducing carbon emissions and water use

AT&T connects people and data by providing broadband, wireless technology and security features. This technology will be critical to the modernization the nation's utilities and at the end of 2012, AT&T was providing communication services for **19 million** smart meters.

QUANTIFYING BENEFITS

Carbon Impact Assessment Tool

In addition to the research described above, AT&T has also created the AT&T Carbon Impact Assessment Tool, with which business customers can easily calculate the estimated GHG emissions and cost savings of using solutions that replace or reduce business travel and increase productivity and collaboration. The tool estimates the financial and environmental savings associated with several services, including AT&T Telepresence Solution®, AT&T Connect® and AT&T Remote Access Service.

AT&T is the first communications provider to offer such a tool for businesses.

Collaboration

As an industry, we know we need to better measure the degree to which we can help others increase energy efficiency and reduce CO_2 emissions. This is something we are working to address with industry groups such as the Green Grid, Energy Efficiency Inter-Operator Collaboration Group, Alliance for Telecommunication Industry Solutions, CDP, Verdantix and Carbon War Room.

Read more about our collaboration with industry groups.