Press release

Communications Turns Totally Green

Green Touch™ initiative targets 1000-fold improvement in energy efficiency by transforming Internet and communications networks

London, January 11, 2010 – The world took a big step closer today to a green and more sustainable communications future with the launch of Green Touch™, a global consortium organized by Bell Labs whose goal is to create the technologies needed to make communications networks 1000 times more energy efficient than they are today.

A thousand-fold reduction is roughly equivalent to being able to power the world's communications networks, including the Internet, for three years using the same amount of energy that it currently takes to run them for a single day.

Today's Green Touch press conference will be available via a video webcast at 2:30 p.m. GMT (3:30 p.m. CET/9:30 a.m. ET) through the following link: www.greentouch.org

Green Touch brings together leaders in industry, academia and government labs to invent and deliver radical new approaches to energy efficiency that will be at the heart of sustainable networks in the decades to come. With its launch, the consortium also has issued an open invitation to all members of the Information and Communication Technology (ICT) community to join forces in reaching this ambitious target.

"Truly global challenges have always been best addressed by bringing together the brightest minds in an unconstrained, creative environment. This was what we used when putting a man on the moon and is the same approach we need to implement to address the global climate crisis. The Green Touch initiative is an example of such a response - bringing together scientists and technologists from around the world and from many different disciplines in an environment of open innovation to attack the problem from many different directions," said Dr. Steven Chu, US Secretary of Energy.

"The ICT sector is perfectly placed to bring its innovative and technological forces to bear in the low carbon transition as well as in curbing its own carbon footprint. The Green Touch Initiative shows how business can play its part in delivering the low carbon society we are working to achieve. With Government creating an environment in which innovation can flourish, we welcome industry coming together with academia to create the research, technology and solutions necessary to reduce carbon emissions," said Ed Miliband, Secretary of State for Energy and Climate Change, UK.

"Industry has to play a major role in the drive to increasing global energy efficiency. This is both a matter of environmental responsibility and competitiveness. We regularly endorse such projects in our "pole de compétitivité" (competiveness cluster) policy and the Eureka clusters. This is a particularly crucial area of focus because of increasing usage of ICT and the Internet. The world-wide Green Touch consortium will open the way to generating major technological breakthroughs. France supports this project, which is open to all and in which two major French labs are founding members," said Christian Estrosi, Minister for Industry, France.

"Climate change is an enormous and immediate challenge that needs to be address globally and with bold actions. It is only through harnessing the best minds around the world, regardless of their mother companies, industry, or nationality, that we will make the difference we need to. The Green Touch consortium, with its open innovation model that harnesses the leading minds across the globe and includes experts from every part of ICT, is the model for the sort of radical

initiatives that we need to address the huge challenge of global warming," said Jong-Soo Yoon, Director General, Ministry of Environment, South Korea.

"The Portuguese Government has been taking measures to promote the production of energy by clean technologies. The Green Touch initiative calls our attention to the importance of the network and collaboration between different institutions when we face global challenges as sustainable development. I encourage the participants of this initiative to bring good solutions to promote the energy efficiency of communication networks," said Paulo Campos, Secretary of State for Public Works and Communications, Portugal.

"Over the next decade billions more people will upload and share video, images and information over public and private networks as we communicate with each other in new, rich ways. We also expect ICT usage to dramatically increase as other industries use networks to reduce their own carbon footprints. This naturally leads to an exponential growth in ICT energy consumption which we, as an industry, have to jointly address. This consortium is unique in looking way beyond making incremental efficiency improvements and tapping into innovation and expertise from around the globe to achieve fundamental breakthroughs in ICT carbon emissions reduction," Gee Rittenhouse, vice president of research at Bell Labs and consortium lead.

Green Touch Initiative founding members include:

- **Service Providers:** AT&T, China Mobile, Portugal Telecom, Swisscom, Telefonica
- **Academic Research Labs:** The Massachusetts Institute of Technology's (MIT) Research Laboratory for Electronics (RLE), Stanford University's Wireless Systems Lab (WSL), the University of Melbourne's Institute for a Broadband-Enabled Society (IBES)
- **Government and Nonprofit Research Institutions:** The CEA-LETI Applied Research Institute for Microelectronics (Grenoble, France), imec (Headquarters: Leuven, Belgium), The French National Institute for Research in Computer Science and Control (INRIA)
- **Industrial Labs:** Bell Labs, Samsung Advanced Institute of Technology (SAIT), Freescale Semiconductor

This 1000-fold efficiency target is based on research from Bell Labs that determined that today's information and communication technology (ICT) networks have the potential to be 10,000 times more efficient then they are today. This conclusion comes from a Bell Labs' analysis of the fundamental properties of ICT networks and technologies (optical, wireless, electronics, processing, routing, and architecture) and studying their physical limits by applying established formulas such as Shannon's Law [1].

"With the boom in broadband usage, ICT energy consumption is rapidly increasing and immediate steps need to be taken to address this trend and mitigate its impact," said Vernon Turner, Senior Vice President and General Manager for Enterprise Computing, Network, Consumer, Telecom and Sustainability at IDC, a leading industry analyst firm. "What distinguishes the Green Touch Initiative is its commitment to a hugely ambitious yet quantifiable goal that is rooted in hard science. Its global profile and multi-disciplinary approach will accelerate the necessary fundamental rethinking and development of new technologies."

To support its objectives the Green Touch Initiative will deliver -- within five years -- a reference network architecture and demonstrations of the key components required to realize this improvement. This initiative also offers the potential to generate new technologies and new areas of industry.

The first meeting of the consortium will take place in February and will be dedicated to establishing the organization's five-year plan, first-year deliverables, and member roles and responsibilities.

[1] Shannon's Law is a formula used to predict the useful capacity of any communications channel.

For those companies interested in joining the consortium, please visit the web site: www.greentouch.org

Green Touch Member Profiles:

- AT&T - With a powerful array of network resources that includes the nation's fastest 3G network, AT&T is a leading provider of wireless, Wi-Fi, high speed Internet and voice services in the United States and around the world.
- CEA-LETI - a leading global research centre committed to creating and providing innovative solutions for industry in micro-and nanotechnology for telecommunications, healthcare, security, transportation and energy/environment applications
- China Mobile – leading mobile operator with the largest network and subscriber base in the world; China Mobile was recognized in the Dow Jones Sustainability Index in the past two years
- Freescale Semiconductor – a global leader in the design and manufacture of embedded semiconductors for the automotive, consumer, industrial and networking markets
- imec - performs world-leading research in nano-electronics. Imec leverages its scientific knowledge with the innovative power of its global partnerships in sustainable ICT, healthcare and energy. imec delivers industry-relevant technology solutions
- The French National Institute for Research in Computer Science and Control (INRIA) - dedicated to fundamental and applied research in information and communication science and technology (ICST)
- The Research Laboratory for Electronics (RLE) at Massachusetts Institute of Technology (MIT) - first of the Institute's great modern interdepartmental academic research centers and one of MIT's largest and most diverse research laboratories
- Portugal Telecom ("PT") - a leading telecommunications provider with more than 68 million customers in 13 countries
- Samsung Advanced Institute of Technology (SAIT) – SAIT, Samsung Group's central R&D organization was established in 1987 as the incubator for cutting-edge technologies. SAIT's research fields consist of future IT, new materials and device, bio, and energy
- Swisscom – Switzerland's leading telecoms provider, with 5,5 million mobile customers and around 1.8 million broadband connections
- The Wireless Systems Lab (WSL), Stanford University - investigates broad areas of wireless system design to meet these technical challenges associated with the development of next generation wireless communications infrastructure
- Telefonica - one of the world's largest telecommunications companies by market cap operating in 25 countries with a customer base exceeding 268.6 million globally
- The Institute for a Broadband-Enabled Society (IBES), University of Melbourne - a cross-disciplinary research institute dedicated to products, services, and innovations that maximize the benefit of new broadband technologies
- Alcatel-Lucent Bell Labs - leading global research organization and innovation engine of Alcatel-Lucent, trusted partner of service providers, enterprises and governments worldwide

Consortium Member Quotes:

"AT&T looks forward to working with members of the Green Touch consortium to achieve a 1000 fold improvement in energy efficiency across communications networks. The ICT sector has the unique ability to reduce emissions of our customers five times greater than our own emissions by enabling unique applications and customer solutions. For AT&T, this consortium is a logical fit, building on our corporate goal to reduce our energy use relative to the amount of data we carry over our networks."

John Stankey, president and CEO, AT&T Operations

"The CEA-LETI has a long-standing commitment of developing ultra low power technologies and energy efficient innovative systems for industry. We are proud to join the Green Touch Initiative, bringing our expertise over the full chain of energy-aware solutions to expand the footprint of new technologies and new concepts for a greener planet, a sustainable connected world and a more healthy life for all."

Laurent Malier, CEO, CEA-LETI

"As a mobile operator with the largest network and subscriber base in the world, China Mobile initiated in 2007 the "Green Action Plan" to focus on energy saving and carbon emission reduction. We have since then actively pushed for reduction of our energy consumption by adopting various kinds of energy saving technologies, and joined hands with a large number of suppliers and partners to develop a green telecom industry chain. We also leverage the strength of mobile communications services to benefit the society,

and help our customers and communities to reduce carbon emission. China Mobile is committed to working jointly with the Green Touch Consortium for the green and low-carbon future of ICT."

Wang Jianzhou, CEO, China Mobile

"Rarely does one have a chance to dramatically change the technical landscape while at the same time providing such a positive impact on the environment. As the ICT network continues to grow, it is incumbent upon the technical community to minimize the carbon footprint through technology advances that drastically reduce overall power consumption. Freescale is excited and delighted to join the Green Touch Initiative which is focused on achieving a 1000-fold decrease in power consumption. The program aligns with our fundamental principles of developing and delivering innovative technologies for the networking industry."

Ken Hansen, Senior Fellow, Vice President and Chief Technology Officer, Freescale Semiconductor.

"Key to imec's mission is ensuring a sustainable society. Energy efficiency is present in all our R&D programs, from energy generation over smart grid to highly efficient ultra-low power solutions for smart systems. The "Green Touch Initiative" expresses imec's ambition to reduce power from the application layer to the device architecture. We are enthusiastic to be able to contribute to drastically lowering the energy consumption in one of the key enabling technologies for a future with a better life for all, communication across the planet, with a "green touch."

Luc Van den hove, President and CEO, imec

"Conceiving the infrastructures of the future sustainable digital society is one of our priorities. Energy consumption related to these technologies, their environmental impact and the potential for ensuring a sustainable development of our societies are key issues that mobilize our research teams. With our experience of partnership with numerous public and private leaders of research and innovation, we are convinced that the joint efforts within the Green Touch Initiative will provide genuine solutions to these challenges."

Michel Cosnard, Chairman and CEO, INRIA

"As communications is an integral part of our infrastructure, the attending energy needs are becoming more pressing. The Green Touch initiative is a great opportunity to create an intelligent, sustainable plan to keep our world connected".

Professor Muriel Medard,
The Research Laboratory for Electronics (RLE) at Massachusetts Institute of Technology (MIT)

"In the course of the last few years, Portugal Telecom has dedicated itself to stimulating the implementation of good environmental practices in its own organization, suppliers and customers, having defined an environmental management policy and mobilized resources so as to comply with the best environmental practices. Technological evolution, lesser energy dependency of new equipment, free cooling systems, the progressive introduction and availability of renewable energies are the main actions we have already taken in order to guarantee the efficiency of our ICT networks and its carbon emissions. Portugal Telecom is committed to the Green Touch project and we believe that together with our partners we can effectively do more and better in order to preserve the environment quality and assure a significant difference."

Alfredo Baptista, CTO of Portugal Telecom

"Environmentally conscious management and social responsibility are firmly rooted in Swisscom's corporate strategy. Swisscom has been operating a systematic environmental management system for eleven years and was the world's first telecommunications company to be certified to the ISO 14001 environmental standard. Swisscom treats the environment and its resources with respect and continuously improves its energy efficiency. We are thrilled to participate in this consortium and to discover network architecture and operations breakthroughs as well as new usage of technologies which would drastically enhance ICT energy efficiency."

Stéphane Dufour, Head of strategy and innovation, Swisscom

"ICT technologies have had a tremendous impact worldwide, but these technologies were developed under a premise of limited wired and wireless network capacity coupled with the low cost of energy. Today network capacity has grown tremendously, and so has the financial and environmental cost of energy. We must rethink the architecture and design of our communication networks to reduce their energy consumption by orders of magnitude. The breadth and vision of the consortium in addressing this goal as well as the key players involved across industry and academia provide a rare opportunity to develop a dramatic leap forward next-generation network designs."

Dr. Andrea Goldsmith, Professor of Electrical Engineering, Stanford University

"The role that the ICT sector has to play in meeting ambitious emissions reduction targets is critical and technology is an important tool at its disposal. ICT solutions have the potential to reduce by a factor of five the sector's own emissions. This is equivalent to 7,8 GTn CO2, or 15% of the total world emissions predicted by 2020 (Smart 2020 Report, 2008). It is ICT's role and the mission of the Green Touch Initiative to realize effectively this potential and in the process raise the political discussion in order to foster ICT development in a low carbon environment."

Vicente San Miguel, CTO, Telefónica

"IBES is delighted to be part of this exciting project, and stand with other members of the consortium on the threshold of a new era in information technology and telecommunications. Outcomes from the Green Touch Initiative will be critical to the future of the entire industry."

Professor Rod Tucker, Laureate Professor and
Director of the University of Melbourne's Institute for a Broadband-Enabled Society (IBES)

"What we are witnessing is a fundamental shift in thinking about ICT from a focus on optimizing networks for maximum capacity to optimizing them for energy efficiency. The consortium we are forming serves as a major milestone along the path toward a future where the potential of communications networks to meet the demands of their users and benefit society is inextricably linked to our success in achieving environmental sustainability by reducing energy consumption."

Jeong Kim, President, Bell Labs

About the Green Touch Initiative

Green Touch Initiative, a consortium of leading industry players, research institutions and non-governmental organizations to define the challenge, identify solutions and develop solutions with the goal to deliver the architecture, specifications, roadmap, and demonstrations of key components needed to reduce ICT energy consumption per bit by a factor of 1,000 from current levels within five years. www.greentouch.org

Green Touch Press Contacts

Peter Benedict	Tel: + 33 (0)1 40 76 50 84	pbenedict@alcatel-lucent.com
Paul Ross	Tel +1 908 230 8030	paul.ross@alcatel-lucent.com

Alcatel-Lucent Investor Relations

Rémi Thomas	Tel: + 33 (0)1 40 76 50 61	remi.thomas@alcatel-lucent.com
Don Sweeney	Tel: + 1 908 582 6153	dsweeney@alcatel-lucent.com
Tom Bevilacqua	Tel: + 1 908-582-7998	bevilacqua@alcatel-lucent.com
Tony Lucido	Tel: + 1 908 582 5722	alucido@alcatel-lucent.com