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European Commission, DG INFSO
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Response of Google to: PUBLIC CONSULTATION on Information and Communication Technologies enabling Energy Efficiency

Google welcomes the opportunity to provide a submission to the European Commission DG Information Society and Media "Consultation on Information and Communication Technologies (ICTs) enabling energy efficiency". An open consultation such as this one allows stakeholders to contribute to building responsible and sustainable policy principles for energy efficiency in Europe.

We begin our comments with a brief overview of Google's activities. We then address how we feel the ICT industry, with leadership by the European Commission and governments in the European Union, can help achieve the European Council objectives on European targets on climate and energy policy for 2020. Our last recommendation also provides an outline of how Google engages in energy efficiency.

About Google

Google is a technology innovation company serving hundreds of millions of users around the world with largely free products and services. Our mission to organize the world's information and make it universally accessible and useful started with our popular search engine and today includes products such as email, instant messaging, Google News, Google Maps, YouTube, Google Apps (a paid-for package of custom email addresses, online tools for word processing, spreadsheets and presentations and a shared calendaring system) and photo management software Picasa among others.

In addition to serving users, Google's on line advertising network supports thousands of small and medium sized businesses in Europe to fulfil the European internal market's business needs, reach potential customers and benefit from the commercial potential of the internet. Hundreds of thousands of website publishers generate revenue by placing our ads on their pages to monetize advertising space on their websites, fostering competition and consumer choice.

Energy Efficiency leadership by the ICT industry, European Commission and Governments in the European Union

Google believes the environmental, social and economic impact associated with climate change requires serious and continued commitment from industry, civil society and government. We believe in an ecosystem where ICT industries can continue to innovate and compete to offer benefits to consumers and businesses, while adopting high environmental and energy standards. Likewise, ICT industries can enable other industrial and service sectors to be less carbon-emitting, thereby contributing to reducing the 98% of greenhouse gases emitted globally by non-ICT sectors.

Google is in a privileged position to have been able to make investments and put resources towards our aim to reducing our carbon footprint to zero. We achieved this objective in 2007 and continue our efforts to repeat this for 2008. We are one of many other companies in the ICT industry who understand the first step to building a clean energy future is to take measured risks and lead through innovation.

Google supports the European Commission and its member states' global leadership function to design long-term environmental and energy policies. By encouraging industry to reduce their energy consumption and make available technology advancements, society as a whole can benefit. In this consultation, we would like to support **four key areas of leadership for the European Commission and EU governments**:

I. Encourage technology innovation - make renewable energy competitive and mainstream

To accelerate the scale of innovation required to make green energy sources affordable in our lifetime, governments must continue to play a leading role in fostering the development of new technologies. Some countries or regions in Europe are leaders, for instance, with Germany already the largest consumer of wind power and several Spanish provinces generating over half of their energy from renewable sources as a result of favourable regulation and incentives. This is encouraging, but there is far more that can be done. Europe's future as a technology leader in energy efficiency hinges around two aspects.

Firstly, there is a powerful case for **solving the economics of renewable energy**. Today, renewable energy accounts for less than 7**%** of total energy consumption in Europe - this is due to low supply combined with high costs of production, and subsequent high consumer prices. We strongly support the EU's existing efforts and plans to extend the use of renewable energy which will gradually make it cheaper to produce and consume, thereby reducing the CO2 footprint of fossil fuels.

Achieving this will be key to - at least - meet Europe's energy efficiency goal to increase to 20 percent the proportion of renewable energies in overall energy consumption. Governments will be able to support this by putting in place the objectives of the proposed Directive on the promotion of the use of energy from renewable sources for transmission and system operators to guarantee renewable energy sources to access the grid, thereby making renewable energy sources a mainstream choice for consumers and industry.

With strategic incentives and investment schemes - led in partnership by government and business - Europe can find the necessary solutions to make renewable energy an affordable alternative.

Secondly, **governments need to act as incubators of science and technology** to help solve our climate challenges. Research and development should continue to be at the forefront of the Commission's objectives of finding technical and economic solutions to reduce fossil fuel dependency. More aggressive efforts - for instance in the EU's research framework programme and through

investment in pilot projects - can seed the type of innovation Europe needs to continue to be world leader of renewable energy solutions.

In sum, partnerships between government and the private sector are required to gradually reduce our dependency on coal as a generator of electricity. Building upon existing initiatives and especially the proposed Directive on the promotion of the use of energy from renewable sources, member states will need to condition good fiscal and regulatory environments that encourage innovation for carbon-reducing technology and new business models to sustain them.

II. Establish and foster energy efficiency standards

We recommend **encouraging more ambitious efficiency standards** for IT equipment to reduce energy consumption, as currently discussed through the processes established by the Eco-Design of Energy using Products Directive (EUP). In this context, it is important to take account of the fact that industry is already leading successful energy efficiency solutions - such as the "Energy Star" label indicating energy efficient products and practices.

With this in mind, Google founded the Climate Savers Computing Initiative (CSCI) with Intel in 2007. The goal of this broad-based environmental effort is to save energy and reduce greenhouse gas emissions by setting aggressive new targets for energy-efficient computers and components. A range of industry firms (Dell, EDS, HP, IBM, Lenovo, and P&G among others) and environmental and consumer organizations (Environmental Protection Agency, the World Wildlife Fund) aim to set a new 90 percent efficiency target for power supplies. If achieved, greenhouse gas emissions would be reduced by 54 million tons per year -- saving more than EURO 3.4 billion in energy costs. We would welcome government encouragement of widespread adoption of practices and standards such as those advocated by CSCI. In this way, businesses can respond to consumer demand for energy-efficiency goods.

Collaboration between industry - with technical know-how to develop initiatives such as CSCI - and government - best equipped to direct energy policy - is crucial to achieving better and more efficient use of energy within the ICT sector and beyond.

III. Use the Internet as a catalyst for efficiency and platform for information transparency

The Internet serves as a backbone to economies around the world. The availability and reach of on line information has become an important source for decision-making by industry, government and citizens.

Google encourages **use of the web to dematerialise and mechanize some elements of work** and to serve as a catalyst for efficiency. Already web-based word processors, email, spreadsheets and presentation packages that allow for more efficient collaboration between people - known as Software as a Service (SaaS) - are revolutionizing public services and business delivery. Recent industry research conducted by The Climate Group found using technology to dematerialise the way we work and operate across public and private sectors could deliver a reduction of 500 MtCO2e in 2020 – the equivalent of the total ICT footprint in 2002. Web-based services thus play an important role in achieving a knowledge-based, low carbon economy and in transforming business processes in a way that result in higher wealth gains and lower carbon emissions.

Local authorities in Europe are already embracing ICT for e-government. The Diputación Provincial de Burgos in Spain, the Veneto regional government agency in Italy and the Swedish national police, among others, use Google Apps packages (a paid-for package of custom email addresses, tools for word processing, spreadsheets and presentations and a shared calendaring system) to achieve this. We encourage embracing SaaS as an alternative ICT delivery model.

Google strongly believes **the Internet has become a platform for information transparency**. This has been long understood by many organisations using it as a platform to raise awareness for green issues. For instance, the United Nations Environment Program has created the “Atlas of our Changing Environment” to show pictures, such as the deforestation in Brazil or the shrinking of Lake Chad in Africa on Google Earth.

In this vein, we consider the public can benefit from data already held by European governments. We would like to see the European Commission leading efforts to make public services more accessible on line, share public transit information or offer transactional services to help government build trust with citizens and help avoid unnecessary use of transport, paper and energy.

IV. Set standards for business to become carbon neutral

We anticipate widespread **carbon footprint reduction by businesses** to be an outcome of ongoing legislative proceedings at EU level. Bodies such as the Carbon Trust already work closely with business to achieve this. We would like to see a pan-European standard set for all industries to aim to cut their carbon emissions and exercise good will in achieving realistic targets.

Google implemented a number of internal policies to achieve carbon neutrality in 2007. Specifically, we calculated our carbon footprint by taking into account the emissions from direct fuel use, purchased electricity, business travel, construction, estimates for employee commuting, and the manufacturing of our servers around the world. We've partnered with the Environmental Resources Trust (ERT®) to have our footprint independently verified.

We are taking a three-step approach to achieve carbon neutrality. First, we’re increasing the energy efficiency of our own operations. Second, we’re actively pursuing the use and creation of clean and renewable sources of electricity. Third, for the emissions we can’t reduce directly at this time, we’re investing in high-quality carbon offset projects, looking for project activity that would not be viable without carbon financing. For example, we have supported the installation of improved animal waste management systems in small livestock operations in Mexico and Brazil to capture and flare the biogas produced.

We will continue to implement green policies and would like to share some of them to serve this consultation with specific examples on reducing corporate carbon emissions. Some of our initiatives include:

Efficient Computing

We take our energy use very seriously and hope to be a leader in energy efficiency. For example, our data centres use half as much energy as a typical industry data centre to power the same amount of computing. We have achieved this improvement over industry standards through the use of increasingly efficient power supplies and evaporative cooling technology - cutting the company's power consumption by a factor of more than two.

Google has also started to share some of what we’ve learned about efficient computing and in 2007 we helped found the Climate Savers Computing Initiative. The goal of this industry-wide consortium is to reduce computer power consumption by 50% by 2010.

Green Buildings

Conscious of the impact buildings have on the environment, we have established policies to follow responsible environmental practices. Our main buildings in Mountain View, California all use sustainable

building materials that are environmentally friendly and healthier for employees, such as Cradle-to-Cradle certified products, fresh air ventilation, and PVC- and formaldehyde-free materials when possible.

In addition, we are gradually retrofitting our global offices with high-efficiency lighting, optimizing use of natural light, and using better building control systems. We are also looking to reduce – and eventually eliminate – the use of incandescent light bulbs in our global offices and replace them with more efficient fluorescent bulbs. We're planning to expand our use of power management software for desktop computers, as well as motion sensors and other lighting controls that further reduce our power usage.

Solar Panel Installation

We're eager to use more on-site renewable power too. Last summer, with an eye toward bringing solar power into the mainstream, we switched on one of the largest corporate solar installations in the United States at our Mountain View headquarters. Our solar panels produce 1.6 MW of electricity, enough to power approximately 1,000 average California homes.

9,212 solar photovoltaic panels cover the rooftops of six buildings and two car ports at our Mountain View headquarters. The electricity produced offsets approximately 30% of peak electricity consumption for those buildings and the installation will pay for itself in about 7.5 years.

Renewable Electricity Cheaper Than Coal (RE<C)

Business as usual will not deliver low-cost, clean, renewable energy soon enough to avoid devastating climate change. In fact, even producing unlimited electricity from renewable sources won't make a difference unless we can find a way to make it cheaper than electricity from coal. That's why in the fall of 2007 we launched an initiative called RE<C which aims to create utility-scale renewable electricity that is cheaper than coal, in years, not decades. Google has established an internal research and development group that will focus on renewable energy technologies and our first dedicated engineers recently began work at our headquarters in Mountain View

Google.org has also invested $30 million to date in renewable energy technologies including solar thermal and high-altitude wind technologies.

RechargeIT Initiative

RechargeIT is a Google.org initiative that aims to reduce CO2 emissions, cut oil use, and stabilize the electrical grid by accelerating the adoption of plug-in hybrid electric vehicles and vehicle-to-grid technology. Our overarching vision is that one day thousands of cars will be plugging into a green grid.

We launched this initiative by creating a fleet of plug-in hybrids to demonstrate the capabilities of plug-ins and measure their performance. Known as the GFleet, the cars are available for employees at our headquarters to reserve for free - and they are powered by solar car ports on-campus. Google.org also granted more than EURO 630,000 and announced a EURO 6.3 million request for investment proposals from companies developing plug-in and related technologies.

We also recently hosted a conference in Washington, DC to place a spotlight on plug-in electric vehicles, examining their viability, and highlighting the different federal policies to promote them. We gathered senators, congressmen, technologists, plug-in vehicle owners, and others to accomplish this goal.

Green Employee Benefits

At Google, we encourage employees to make the best use of company facilities and resources. For example, we have an extensive shuttle system in the Bay Area, San Francisco that transports more than 1,500 staff to and from work everyday and runs on biodiesel. Also, our Self-Powered Commuter (SPC) programme for employees donates EURO 60 to the charity of choice of every employee that cycles or walks to work every 20 days. Employees who purchase a hybrid vehicle receive a subsidy toward purchase of highly fuel-efficient vehicles. Last year all employees in Europe received a free bicycle to encourage use of non-polluting transport.

In addition, employees at various Google offices around the globe have established “green committees” for staff with a special interest in the environment to brainstorm ideas, research how to make the company greener and implement new ventures. We encourage these types of initiatives and also implement internal green policies and campaigns to help create conscious use of PC energy, paper, lighting and responsible disposal of waste.

Conclusion

Google believes energy usage is an extremely important issue and we are glad to see more public focus on the problem. As we have stated above, we welcome the Commission and member states' efforts to establish a sustainable, integrated European climate and energy policy as a top priority. Industry as well as government have an important role to play to combat climate change.

Should you wish to contact us regarding our comments, which can be of public disclosure, please do not hesitate to contact Silvia Fukuoka-Álvarez, European Policy Analyst, via email silvia@google.com or Sebastian Mueller, European Policy Manager in Brussels via email sebmueller@google.com or phone 0032 (25)176160.