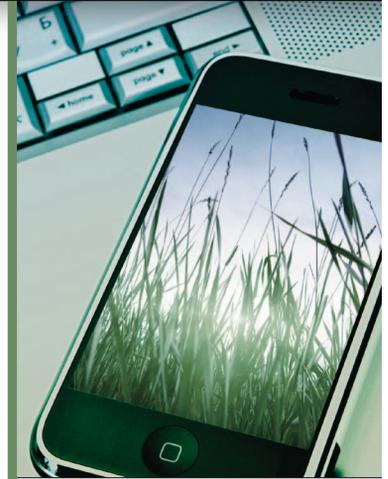


# Why Go Green?

## How sustainability can benefit mobile telecommunications, despite consumer disinterest

*Most mobile operators have invested in climate change programs and “green” initiatives. Do mobile customers notice? Not really, according to the findings of a recent A.T. Kearney survey. Environmentally friendly conduct is of little significance in the purchase decision, and most customers are not aware of the effect of mobile phones on CO<sub>2</sub> production. Nonetheless, smart operators will continue their green initiatives, not only to reduce costs but also to meet investors’ expectations for sustainable management.*



Mobile communications companies, whether network operators or technology suppliers, increasingly emphasize sustainability, often by announcing intentions to help prevent climate change, unveiling “green” products such as carbon neutral cell phones, and presenting awards to environmentally friendly companies (*see sidebar And the Winner Is... on the following page*).

Companies often launch green initiatives under the assumption that being perceived as sustainable—balancing economic success, social responsibility and eco-friendliness—represents a competitive advantage. For example, companies that use resources economically are seen as creating a cushion against rising and volatile raw material prices. Indeed, sustainability has a positive effect on market valuation: according to a recent study, the stock prices of companies perceived to be sustainable generally perform better

than the respective industry average.<sup>1</sup> It is also argued that demonstrable sustainability can persuade customers to pay higher prices.

However, a survey by A.T. Kearney in collaboration with Professor Werner Kunz of the University of Massachusetts finds that for mobile communications, sustainability does not play an important role in consumers’ purchasing decisions.

Given customers’ lack of interest, and amid an acute financial crisis, mobile communications CEOs are wondering: “Should we continue to pursue sustainability as vigorously as before?”

### Most Customers Are Simply Not Interested

In the survey, customers were asked to rate various factors in terms of their importance in their decision to choose a particular network operator. The

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<sup>1</sup> See “Green” Winners: The Performance of Sustainability-Focused Companies During the Financial Crisis,” at [www.atkearney.com](http://www.atkearney.com).

## And the Winner Is...

At the recent Mobile World Congress 2009 in Barcelona, the GSMA presented the Green Mobile Award, sponsored by A.T. Kearney, to Philippines-based SMART Communications. The award recognizes companies that employ new and innovative concepts and programs that promote environmental protection and sustainability. The GSMA is a global organization representing the interests of the mobile communications industry.

SMART won for its outstanding achievements in using alternative energy sources to power cell sites in off-grid locations. At present, 68 sites in various parts of the country are powered by renewable energy. Of these, 41 are run by wind energy and 27 by a combination of wind and solar power.

Also noteworthy, mobile communications companies Telenor, Vodafone and the Orange Group have comprehensive climate protection programs, including the use of state-of-the-art, more energy-efficient network equipment, natural resources in office work, and reducing CO<sub>2</sub> emissions of the company car pool. Deutsche Telekom is among the first mobile providers to meet all of its energy needs from electricity generated from renewable energy sources.

tors' support for environmentally friendly measures. Only 1.5 percent are "environmentalists" who weigh environmental activities as equal to or more important than other factors when purchasing a mobile device. This group also considers health, safety and environmental standards as important, unlike the environmentally aware, who do not.

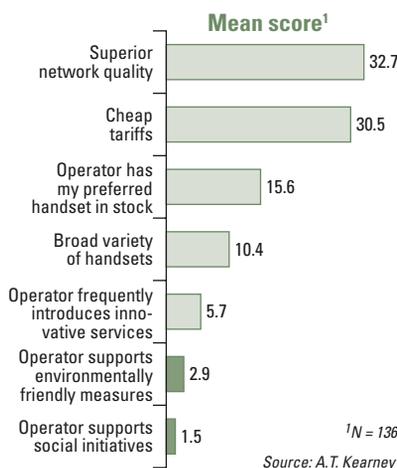
A majority of those questioned judge the mobile communications industry to be environmentally friendly (see figure 2). The only exceptions are the environmentalists. At the same time, most respondents (including environmentalists) underestimate the electricity consumption associated with mobile phone use. Indeed, 86 percent believe that a washing machine at 40°C consumes more electricity than a one-hour phone call. In fact, the energy consumption for the phone call averages 0.5 kWh, whereas the washing machine uses about 0.43 kWh.<sup>2</sup>

In view of the findings, we can draw two conclusions: The environmental conduct of operators has little

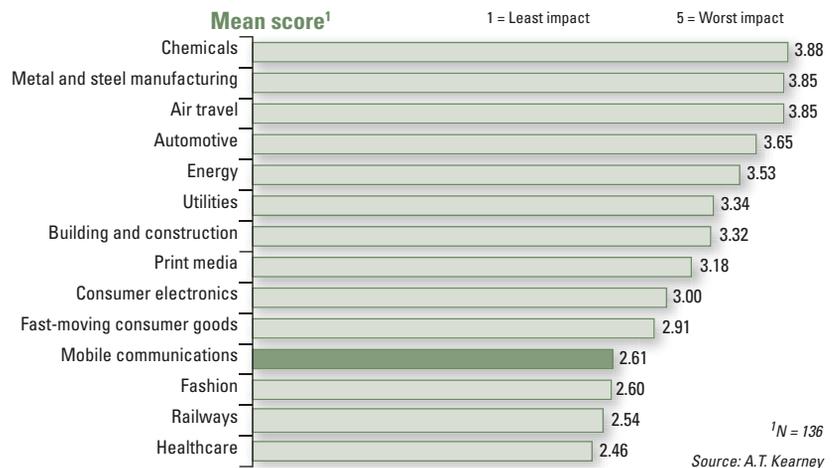
factors "network operator supports environmentally friendly measures" and "network operator supports social initiatives" rank among the lowest in importance (see figure 1). Even when choosing which mobile phone to buy, low radiation emissions or environmentally friendly packaging are of no significance.

Deeper analysis reveals three customer segments: the unconcerned, the environmentally aware and environmentalists. Almost 74 percent are "unconcerned" as they do not consider environmentally friendly initiatives at all in their ratings. Roughly 25 percent are "environmentally aware" as they at least consider network opera-

**FIGURE 1:** Factors that influence consumers' choice of network operator



**FIGURE 2:** Consumers' perception of environmental impact by industry



<sup>2</sup> kWh = kilowatt hour

significance in consumers' purchase decisions, primarily because they are not aware of the amount of mobile phones' CO<sub>2</sub> production. And the environmentally friendly activities of an operator only matter to a small niche segment of customers.

### The Current State of Sustainability

These findings raise an important question: Should mobile operators persist with their commitment to sustainability at the same level as before, or reduce it? The answer depends on the expectations of other stakeholders, such as investors and the press, and the actual sustainability gap in the industry.

Clearly, there is a sustainability gap among mobile communications companies with regard to energy usage and associated CO<sub>2</sub> emissions. By extrapolating the electricity consumption of European mobile operators per customer, and the power requirements of the terminal equipment per customer, to the current number of worldwide mobile phone users (roughly 3.5

billion), we find that total annual CO<sub>2</sub> emissions amount to 40 million metric tons. This is equivalent to the CO<sub>2</sub> emissions of 21.5 million small cars, or the CO<sub>2</sub> uptake capacity of 4 billion trees. By 2020, CO<sub>2</sub> emissions are expected to rise to 55 million metric tons due to the increase in mobile communications customers (see figure 3).

However, there are distinct differences in energy efficiency among network operators. Of the 40 mobile communications companies studied, average consumption per capacity element is 42 to 46 percent higher than average consumption of the best three. Thus, average consumption across all network operators could be considerably reduced.

### Raising Customer Awareness?

The public is not really aware of the true environmental impact of the mobile communications industry. To exploit lower energy usage as a competitive differentiator, a network operator would have to combine advertising with an awareness-raising campaign.

The success of such a strategy appears doubtful, however, as the network operator would either be seen within the industry as "fouling its own nest," or gain a short-term edge over others, but not a lasting competitive advantage. Moreover, a mobile operator's energy consumption is heavily dependent on the age of its network infrastructure, so any advantage won today will be lost once competitors upgrade their networks.

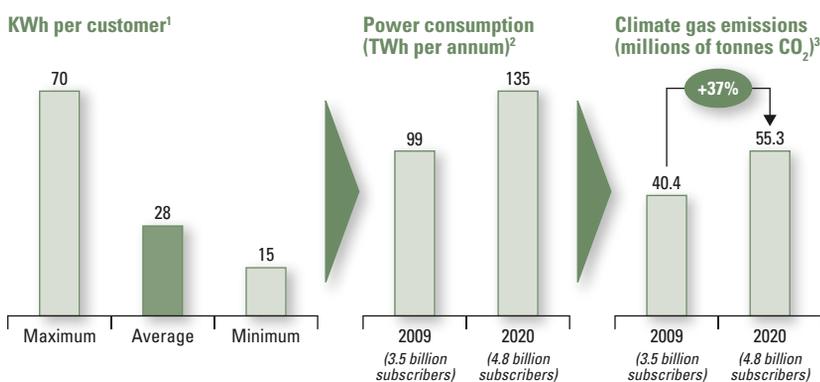
At the same time, settling for the status quo or scaling down environmentally friendly measures also appears inadvisable. After all, there is no guarantee that the true extent of the environmental impact of the mobile communications industry will not become known in the future. In addition, reducing power consumption can yield considerable cost savings.

### Protecting the Climate and Saving Money

Clearly, the mobile sector does not belong among the "smoking chimney" industries that pose a direct burden on the climate. However, the indirect effect of the networks' hunger for power cannot be ignored. For the mobile operator, therefore, combating climate change begins with reducing power consumption and consequently saving money.

On average, 83 percent of a mobile operator's power requirements are attributable to operation of the radio access network (RAN). For a relatively small European operator with a network size of 10,000 BTS/NodeBs, the cost of running the RAN amounts to 14 million euros per year.<sup>3</sup> Network operators have a number of means available to reduce their electricity

**FIGURE 3: Environmental impact of mobile communications**



<sup>1</sup> Per annum. Panel of 40 European operators, including power consumption of network, IT and office buildings, and charging mobile phones.

<sup>2</sup> KWh per customer per annum multiplied by number of subscribers. TWh = terawatt hours.

<sup>3</sup> CO<sub>2</sub>e conversion factor 408.607g CO<sub>2</sub>e per kWh.

Source: A.T. Kearney

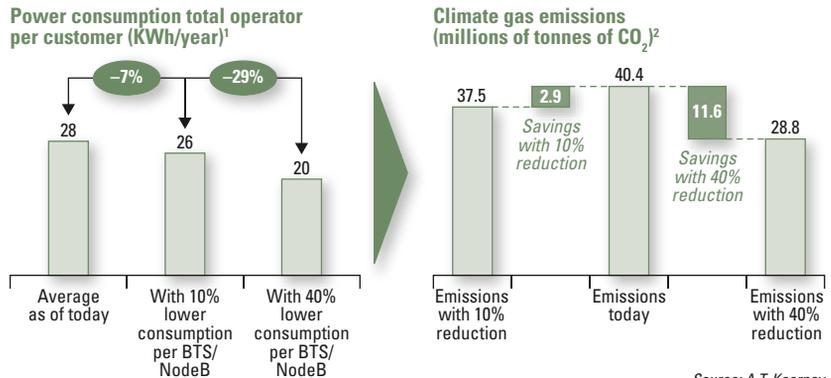
<sup>3</sup> BTS = base transceiver station

demand. For example, air conditioning of the radio equipment: If the ambient temperature were allowed to rise one degree Celsius above typical levels in summer or in warmer regions, electricity consumption per element would be reduced by 5 percent.

To implement this kind of step-by-step approach, it is advisable to set up an energy board that identifies potential energy savings, puts economy measures into practice and monitors compliance with energy efficiency standards when selecting equipment suppliers. Applied consistently, this approach can reduce electricity costs by at least 10 percent per BTS/NodeB. For a network operator with 10,000 elements, this amounts to potential savings of 1.4 million euros each year.

Beyond this, by using advanced radio technology, power consumption per element can be reduced by up to 40 percent. This is particularly attractive if the hardware is at the end of its lifecycle and needs to be replaced anyway. Network operators may want to consider energy efficiency when choosing their network equipment provider, not just purchase price.

**FIGURE 4: Power savings potential for mobile phones**



<sup>1</sup>Panel of 40 European operators, including power consumption of network, IT and office buildings, and charging mobile phones.  
<sup>2</sup>KWh per customer (per annum) multiplied by 3.5 billion subscribers, multiplied by CO<sub>2</sub>e conversion factor 408.607 g CO<sub>2</sub>e per kWh.

Source: A.T. Kearney

The appealing side effect of lowering power consumption is a reduction in CO<sub>2</sub> emissions. If all network operators were to adopt energy-saving measures and reduce their networks' power requirements by 10 percent, at the current level of network utilization, 7 billion kWh of electricity could be saved, and hence about 3 million metric tons of CO<sub>2</sub>. If they were to switch to modern equipment while maintaining the same level of network utilization, savings could amount to about 28 billion kilowatt-hours, or almost 11 mil-

lion metric tons of CO<sub>2</sub> (see figure 4).

### Sustainability: Important Now and in the Future

Reducing CO<sub>2</sub> emissions not only provides direct cost advantages, but also insurance against a change in public perception. If awareness of the environmental burden emerges in the future, mobile operators will be able to point out the steps they have already taken. Furthermore, measures to combat climate change are proof of sustainability, which is rewarded by investors.

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