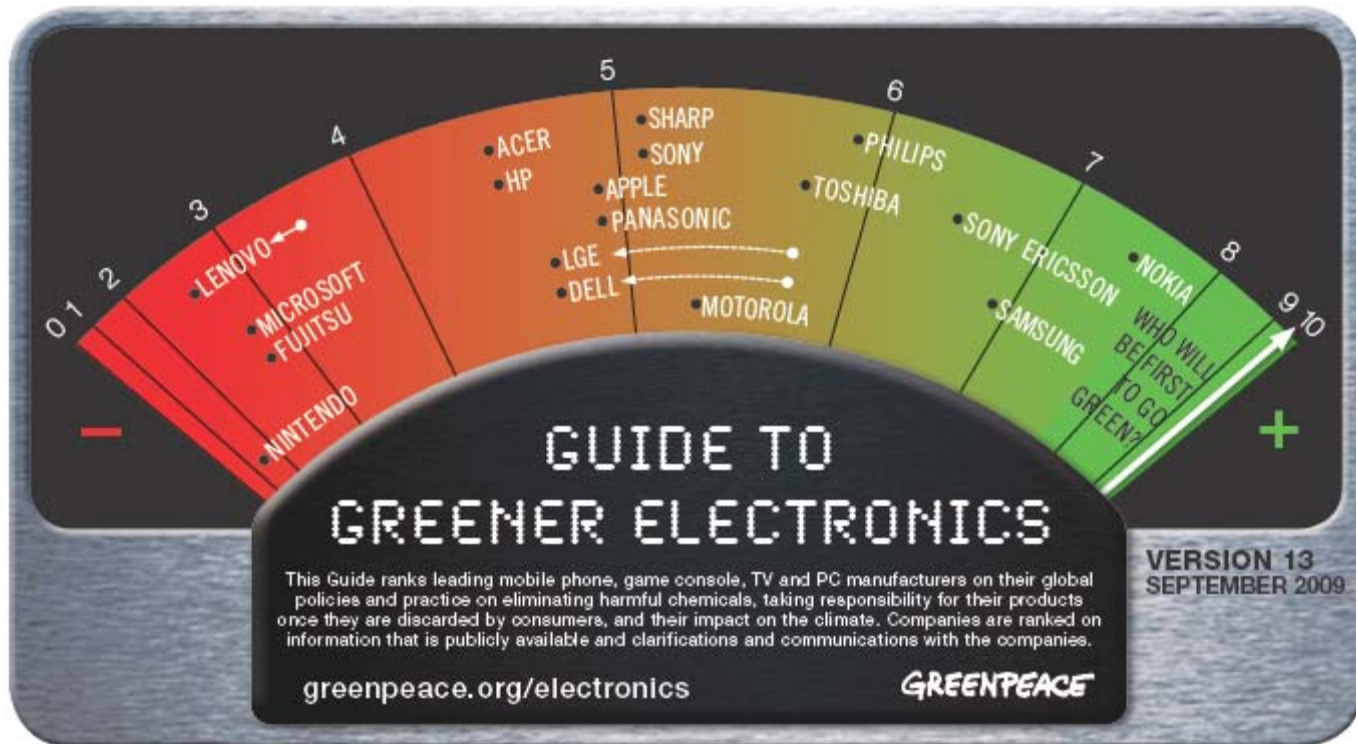


คู่มือสินค้าอิเล็กทรอนิกส์สีเขียว – กันยายน 2552 (ฉบับที่ 13)



**NOKIA Ranking = 7.5/10**

Nokia stays in 1st place with the same score of 7.5 that it scored in v.12. Nokia scores maximum points for its comprehensive voluntary take-back programme, which spans 84 countries providing almost 5,000 collection points for end-of-life mobile phones. It now also scores top marks for the information it provides to customers on what to do with their discarded products.

However, its recycling rate of 3 to 5 percent is very poor and more information is needed on how Nokia calculates these figures. It also needs to start using recycled plastics beyond just packaging.

Nokia scores very well on toxic chemical issues, launching new models free of PVC since the end of 2005 and aiming to have all new models free of all brominated and chlorinated compounds and antimony trioxide from the start of 2010.

Nokia's score on energy remains the same. It scores full marks for committing to reduce absolute CO2 emissions by a minimum of 10 percent in 2009 and 18 percent in 2010, from a baseline year of 2006. It provides a third party verification certificate for its disclosed CO2 emissions. Its score is boosted by sourcing 25 percent of its total energy needs from renewable sources in 2007 and by having a target to increase use of renewable energy to 50 percent by 2010. Top marks (doubled) are given for product energy efficiency as all but one of its mobile phone chargers exceed the Energy Star requirements by between 30 and 90 percent. However, Nokia fails to score any points on

its support for global cuts in greenhouse gas emissions; Nokia needs to call for emissions of greenhouse gases to peak by 2015 and for industrialised countries as a group to accept mandatory cuts of at least 30 percent by 2020, especially during the run-up to the climate negotiations in Copenhagen.

### **SAMSUNG Ranking = 6.9/10**

Samsung holds its position in 2nd place with a slightly reduced score of 6.9, down from 7.1, as a result of failing to extend its take-back programme to non-OECD countries. Samsung scores relatively well on all the criteria.

Since November 2007, all new models of LCD panels are PVC-free, important in driving the market to phase out PVC, with Samsung being the number one supplier globally. The company has launched partially BFR-free models of mobile phones and developed halogen-free memory chips and semiconductors for certain applications. It has also committed to eliminate phthalates and beryllium and compounds by the end of 2012 from all its products, not just from PCs, TVs and mobile phones.

Samsung scores well on e-waste; it reports recycling rates of 137 percent for TVs (based on past sales 10 years ago - the average life span - since when, Samsung's TV sales have increased tenfold), 12 percent for PCs (based on a 7-year lifespan) and 9 percent for mobile phones (based on a 2-year lifespan). However, to score top marks Samsung needs to put a reality check on the EU figures of e-waste recycled. It also scores top marks on its use of recycled plastic, which is 16.1 percent, though only 0.2 percent is post-consumer plastic, with a goal to increase to 25 percent by 2025 and use a majority of post-consumer plastic.

On energy, Samsung has committed to reduce its absolute emissions of greenhouse gases, despite growth in the company's sales; it also supports the levels of cuts required globally and by industrialised countries to keep dangerous climate change in check and for provides a certificate of verification of its greenhouse gas emissions in Korea. Samsung scores top marks (doubled) on the energy efficiency of its battery chargers, all of which meet and 94 percent of which exceed the latest Energy Star standard. The only criterion where Samsung fails to score any points is renewable energy, where it needs to set a target with a timeline to increase the 0.2 percent renewable energy it uses globally.

### **SONY ERICSSON Ranking = 6.5/10**

Sony Ericsson stays in 3rd place with the same score of 6.5. It is one of the best performers on the toxic chemicals criteria of all the ranked brands and also does well on energy.

It is weakest on waste and recycling issues, scoring nothing on use of recycled plastic; there was also an absence of reporting recycling rates of mobile phones as a percentage of past sales. It gains points on its information to consumers about its take-back programme, but loses points for no longer reporting the quantities of e-waste recycled as a percentage of past sales. For more points on e-waste, it needs to continue to increase its lobbying for Individual Producer Responsibility, extend its take-back and recycling programmes, and use recycled plastic across all its products – not just a few models.

It was the first company to score almost top marks on the chemicals criteria. All Sony Ericsson products are already PVC-free and BFR free, with the exception of a few components that are still being phased out. Sony Ericsson has already met the challenge of the new criterion on chemicals by banning antimony, beryllium and phthalates from new models launched since January 2008.

On energy, Sony Ericsson commits to reducing absolute greenhouse gas emissions from its internal activities by 20 percent by 2015 (2008 baseline) and reports that 40 percent of its electricity use globally comes from renewable sources. However, it is disappointing that Sony Ericsson has not made a stronger statement in support of the necessary cuts in global greenhouse gas emissions at this critical time for the Copenhagen negotiations. All of its products meet and exceed the Energy Star standard. It reports CO<sub>2</sub> emissions from its own manufacturing and product transportation, but fails to have these emissions verified by a third party.

### **PHILIPS Ranking = 5.9/10**

Philips climbs from 7th to 4th place with an increased score of 5.9 points (up from 5.3), improving its score on e-waste and energy criteria. Philips now supports Individual Producer Responsibility (IPR), is engaging in a European NGO and industry coalition in support of IPR and is committed to actively work towards developing IPR-based recycling systems and their supporting financial mechanisms. It gains points on energy, for reporting to the latest Energy Star standard. All TVs sold in the US and 90 percent of European models meet Energy Star v.3

Philips scores well on both toxic chemical and energy issues. On chemicals, Philips has committed to eliminating all phthalates and antimony by 31 December 2010. Beryllium and its compounds are already restricted; arsenic has been eliminated from TV glass and other display products from 2008. Philips has now put on the market TVs with PVC/BFR-free housings (EU market only so far), PBV/BFR-free Senseo and oral healthcare products and a PVC-free remote control, but these are insufficient to score one point (doubled).

Philips scores full marks for supporting the levels of cuts in greenhouse gases needed to abate dangerous climate change and for committing to absolute cuts in its operational carbon footprint of 25 percent by 2012 (using a baseline year of 2007). It also scores points for disclosing externally verified carbon dioxide equivalent emissions and for sourcing 15 percent of all electricity used in 2008 from renewables.

Philips is weakest on e-waste and recycling, scoring zero on use of recycled plastic and for no longer reporting on recycling rates based on past sales. It scores a point for its voluntary take-back and now needs to demonstrate its commitment to taking responsibility for its own e-waste by expanding its take-back programme.

### **TOSHIBA Ranking = 5.7/10**

Toshiba stays in 5th place with a slight improvement to its score of 5.7, up from 5.5, for improved reporting on the recycling rates for TVs (21.2 percent in 2008) and PCs (12.8 percent) based on sales 10 and 7 years ago, respectively.

Toshiba is strongest on the chemicals criteria with three models of laptops with circuit boards free from brominated flame retardants (BFRs), two of which have PVC-free power cords for the Japanese market only, as well as EcoMark-certified products without PVC. Toshiba has committed to eliminate PVC and BFRs from all its products by end of FY 2009, in six months' time. Toshiba has also committed to introduce alternatives to phthalates, beryllium and antimony by 2012 in all its products.

On energy, Toshiba scores most of its points on the energy efficiency of its products. Toshiba reports that all PCs developed in 2009 (up to the end of July 2009) comply with the new Energy Star 5, except non-OS models. All new LCD TVs released since November 2008 are Energy Star compliant and 34 models exceed the specifications by 30

percent or more. It is rewarded for supporting global cuts in greenhouse gas emissions with greater cuts for industrialised countries and for disclosing third-party verified greenhouse gas emissions from its own operations. The company commits to cut greenhouse gases, as it has now clarified that it aims to stop increasing emissions by (financial year) 2012. Toshiba loses points on its use of renewable energy as clarification reveals that just 0.1 percent of the renewable energy purchased is additional to that provided by the grid.

The company scores poorly on e-waste due to its lack of support for Individual Producer Responsibility and low use of recycled plastic. However, Toshiba reports a recycling rate of 12 percent for a group of five types of products that includes TVs, PCs and 3 types of home appliances; this rate is based on current (not past) sales and is only for Japan.

### **MOTOROLA Ranking = 5.3/10**

Motorola remains in 6th place, with a slightly reduced score of 5.3 points, which it loses for only committing to eliminate PVC and brominated flame retardants (BFRs) in mobile devices and not all its products. Motorola scores relatively well on the chemicals criteria and has a goal to eliminate PVC and BFRs in all products introduced after 2010, despite the fact that Sony Ericsson has already achieved this goal and Nokia is almost there. Motorola has seven current models (in addition to 52 previously available models) of mobile phone whose circuit boards are free of BFRs, but only two models are free of PVC.

The company also does relatively well on the energy criteria, scoring maximum points on the energy efficiency of its products, reporting that from 1 November 2008, all newly designed Motorola mobile phone chargers meet and exceed by 67 percent the new Energy Star v.2.0 requirements for standby/no-load modes. Motorola scores points on all the energy criteria, bar support for strict global and industrialised country cuts in greenhouse gas emissions. It is rewarded for reporting that 15 percent of the energy it purchases is from renewable sources, with a goal to increase this to 20 percent by 2010 and 30 percent by 2020; for disclosing greenhouse gas emissions, (although it fails to publish its third party verification certificate of CO<sub>2</sub> equivalent emissions); and for committing to cuts of 6 percent in its absolute greenhouse gas emissions by 2010, compared with 2000.

Motorola is weakest on waste issues, with weak support for the principle of Individual Producer Responsibility for e-waste and no reporting on use of recycled plastic. Motorola scores well for its take-back and recycling service in 72 countries, representing over 90 percent of global mobile phone unit sales and for providing good information to its individual customers. It reports a global take-back rate of 3 percent of total handsets sold in 2005 but it needs to explain how its EU figures are calculated.

### **SHARP Ranking = 5.1/10**

Sharp stays in 7th place but with a reduced score of 5.1 points. Sharp gains a point for its support for the precautionary principle but loses a point for the lack of clarity on whether the commitment to eliminate phthalates, relates to all phthalates, or three. Otherwise, Sharp scores well for its policy and practice on toxic chemical issues, although it specifies the end of fiscal 2010, rather than calendar year 2010, for its phase out of PVC and BFRs. It provides a timeline of financial year 2010 for eliminating phthalates and antimony. Sharp has launched many models of LCD TVs and solar modules that are free of PVC (except accessories) and now has 14 models of LED lightings that are BFR free.

On energy, Sharp loses points on the criterion examining energy efficiency of products. Although it reports that all of its TVs meet the latest Energy Star standard and at least half exceed it in standby mode, it fails to report on the percentage of PCs and external power supplies of mobile phones meeting and exceeding ES. Sharp gains a point as absolute emissions of greenhouse gases were 103Kt (6 percent) lower in 2008 than 2007. On other energy issues Sharp only 'contributes' to rather than explicitly 'supports' a mandatory global initiative that requires industrialised countries to reach their peak greenhouse gas emissions by 2015 and cut their greenhouse gas emissions at least 30 percent by 2020. Sharp discloses third-party verified greenhouse gas emissions from its own operations and reports that 9 percent of the electricity it used worldwide in financial year 2006 came from renewable energy sources; however, as most of this is provided as part of the Japanese grid, it scores no points.

Sharp is weakest on the e-waste criteria, scoring points for its voluntary take-back programme for TVs and consumer electronics in the US, which is nationwide; providing information to consumers in a few countries on what to do with their discarded Sharp branded products and reporting on the use of small amounts of recycled plastic. Sharp supports Individual Producer Responsibility (IPR) but needs to clarify this support, as well as show evidence of lobbying for it.

### **SONY Ranking = 5.1/10**

Sony leaps from 12th place to 8th with an improved score of 5.1. It gains points on the precautionary principle criterion and for improving its expression of support for Individual Producer Responsibility.

On energy, Sony scores points on the energy efficiency of its products by reporting that all new models of TVs released in the US (but only US) meet the latest ES requirements, and 45 percent of new models of VAIO PCs launched between July 2007 and November 2008 meet the ES requirements for PCs. It discloses externally verified greenhouse gas emissions for over 200 sites and has committed to absolute cuts in greenhouse gas emissions. However, it needs to set a target and timeline for increasing its use of renewable energy globally.

Sony does relatively well on chemicals, its score boosted by having models on the market that are partially free of PVC and BFRs, including three models of video recorder and many models of the VAIO PC, Walkman, camcorder and digital camera. It still needs to set a timeline for eliminating all phthalates, beryllium copper and antimony and its compounds.

On waste issues, Sony scores relatively poorly for its voluntary take-back and recycling of the e-waste generated by its branded products, as there is little voluntary take-back and recycling in non-OECD countries. It reports a recycling rate of 54 percent based on past sales of TVs and PCs, but this information is only for Japan and separate data need to be reported for TVs and PCs. Sony is rewarded for its use of approximately 20,000 tons recycled plastics annually across several products.

### **APPLE Ranking = 4.9/10**

Apple climbs up the ranking from 11th place to 9th, with a score of 4.9. Apple does best on the toxic chemicals criteria, where it scores most of its points. It scores substantially less on waste and energy.

All Apple products are now free of PVC and BFRs, with the exception of PVC-free power cords which are in the process of being certified. The company needs to be commended for running a bold advertising campaign highlighting the green credentials of its MacBooks. Apple still needs to commit to phasing out additional substances with timelines, improve its policy on chemicals and its reporting on chemicals management.

On the e-waste criteria, Apple has improved coverage of its take-back programme with take-back and recycling services now extended to the Asia-Pacific region, including India, China, Hong Kong, Malaysia, Singapore, New Zealand, Korea and Australia. It reports a recycling rate in 2006 of 18 percent as a percentage of sales seven years ago; however, it needs to provide details on how this is calculated. Apple has set a new goal of achieving a 50 percent recycling rate by 2010.

On the energy criteria, it is disappointing that Apple has yet to make a statement on the need for mandatory reduction of greenhouse gas emissions at this crucial stage in the climate change negotiations. Apple scores a point for reporting that its greenhouse gas emissions were reduced by 3 percent year over year from 2006 to 2007. The company also discloses the carbon footprint of every model of product – although not exactly what is being evaluated in the criterion. Apple's score on the energy efficiency of its products would improve if it provided data on what proportion of its products exceed the latest Energy Star standards and by how much. Apple has yet to report the proportion of renewable energy in the electricity it uses.

### **PANASONIC Ranking = 4.9/10**

Panasonic remains in 10th place with the same score. It performs best on the energy criteria and is weakest on those relating to e-waste and recycling.

On energy, Panasonic scores top marks for reporting to the latest Energy Star energy efficiency standards for external power supplies and TVs. All new models of TVs meet the latest ES requirement, with 100 percent exceeding the standby mode requirement by 70 percent or more. It also scores points for supporting cuts of greenhouse gases of up to 30 percent by 2020 and peaking by 2020 (not the required 2015); committing to absolute reduction in emissions and disclosing greenhouse gas emissions from its own operations which are verified by a third party.

Panasonic's score on use of toxic chemicals is boosted by many models of PVC-free products on the market, including DVD players and recorders, home cinemas, video players and lighting equipment. Panasonic gives two examples of products free of BFRs – fluorescent ceiling lamps and a kitchen lamp. Despite putting these PVC-free and BFR-free products on the market, Panasonic has yet to commit to fully eliminating all PVC and BFRs in its whole product portfolio.

The company scores poorly on all the e-waste criteria. Voluntary take-back so far does not cover all of Panasonic's product groups but it has launched a recent voluntary take-back programme for TVs and consumer electronics in the USA which is now nationwide. However, it loses a point for the slow progress in extending its take-back services to other products and other countries, especially non-OECD.

### **LG ELECTRONICS Ranking = 5.7/10 - 1 = 4.7/10**

LG Electronics plummets down the ranking from 4th place to 11th, with its score dropping from 5.7 to 4.7 points. This is due to the penalty point imposed for backtracking on its commitment to have all its products free of PVC and BFRs by the end of 2010. Now only mobile phones (no longer mobile products) will be free of these toxic substances from 2010; the timeline for eliminating them in TVs and monitors has been delayed until 2012. BFRs are still to be eliminated in other product lines like washing machines, but no timeline is given. PVC will be totally banned from use in household appliance models by 2014. LGE has launched new models of mobile phones, some of whose components are PVC and BFR-free. European LCD TVs are produced with halogen free housing, wiring

and integrated circuit drive. It provides a timeline of 2012 for eliminating phthalates and antimony – but only in new models of mobile phones (no longer all mobile products) and TVs.

LGE gains a point on its support for IPR because it has recently engaged with a European coalition of NGOs and industry in support of this principle, especially during the revision of the EU WEEE Directive. But, LGE loses a point for lack of progress in extending its take-back programmes beyond mobile phones and geographically beyond the US programme (that includes LG, Zenith and GoldStar brands of TVs), launched over a year ago. It also reports its use of (post-industrial) recycled plastic across all LGE products as 11 percent, with plans to increase this to 25 percent by 2025. The company has compiled figures for e-waste recycling in Europe, Asia and North America and reports a recycling rate in relation to current sales for all regions. Globally, the recycling rate for total IT and telecom equipment is 13.2 percent and consumer equipment (that includes TVs) is 13.7 percent. However, LGE fails to disclose the source of EU recycling data or how it was calculated, if this is not merely extrapolated from market shares.

LGE supports the need for global greenhouse gas emissions to peak by 2015 and commits to cutting absolute GHG emissions by 5 percent below the 2008 level by 2012 and by 10 percent by 2020. On the energy efficiency of its products; LGE reports that 100 percent of its chargers meet and 74.6 percent exceed the latest Energy Star standard (v.2.0) by 50 percent; all PCs meet and 71 percent exceed sleep and standby modes by 30 percent; all TVs meet the latest ES standard (v.3.0) and 50 percent LCD TVs and 41 percent PDP TVs exceed the standby requirements.

**DELL Ranking = 5.7/10 - 1 = 4.7/10**

Dell moves up into 12th (from 13th) position, with a slightly improved score of 4.7 points, up from 3.9 points in v.12. Dell's score has plummeted due to the penalty point imposed for backtracking on its commitment to eliminate PVC and BFRs in all its products by the end of 2009. Dell no longer has a timeline for eliminating these substances, which means there is no commitment to phase them out entirely. On other chemicals criteria, the company earns points for putting on the market the first 'Halogen-Reduced' products, including a desktop with a motherboard containing halogen free laminates and halogen free chassis, a notebook with motherboard made of halogen-free laminates, halogen-free chassis plastics and fan housings and several monitors with halogen free boards and chassis. Dell recently launched the G-Series Monitors, its first completely PVC and BFR free products on the market, although PVC- and BFR free cables are currently available only in North America, Japan and Europe/Middle East and Africa.

Dell is strongest on the energy criteria, scoring full marks for committing to reduce global absolute emissions of greenhouse gases from its worldwide facilities by 40 percent by 2015, from a baseline year of 2007 and announcing that 26 percent of its global electricity use now comes from renewable energy sources, up from 20 percent in 2008. Dell is also awarded points for disclosing third party verified greenhouse gas emissions from global operations and on the energy efficiency of its products. 59

percent of laptop models and 63 percent of desktop models are Energy Star 5.0-compliant. Almost all of Dell's desktops, workstations and laptops consume less than 5 watts in a low-power mode, exceeding current Energy Star efficiency requirements. It is encouraging that Dell is making continuous steps to improve the efficiency of its models; however Greenpeace has never received a satisfactory answer to the question, following previous revelations; what percentage of their products leave the factory non-ES compliant, and of these what percentage are specified by the client?

Dell scores most poorly on waste. It no longer provides data on recycling rates based on past sales and fails to clarify its support for Individual Producer Responsibility and not collective financial responsibility. It is rewarded for providing a relatively comprehensive take-back programme, for information to its customers on what to do with their discarded electronics and for reporting use of 1.1 million pounds (500 tonnes) of post consumer recycled plastic in 2008.

### **ACER Ranking = 4.5/10**

Acer drops down the ranking from 11th to 13th place, with a reduced score of 4.5 points, losing points as a lower percentage of its PCs meet the new, stricter Energy Star 5.0 standards for energy efficiency. At present, 55 percent of Acer notebook computers and 29 percent of desktop PCs meet the new Energy Star v.5 standard; previously, 71.3 percent of Acer notebook PCs, 38.5 percent of desktop PCs met the old ES v.4. Acer also lost a point for not making more progress in extending its voluntary e-waste take-back programme beyond India.

Acer scores most points for its efforts on toxic chemicals, gained for putting on the market 16 models of monitor with many parts that are almost free of PVC vinyl plastic and brominated flame retardants (BFRs), except for the power cord. In the last two versions of the ranking, the company has not been penalised for backtracking on its commitment to eliminate PVC and BFRs in all products by the end of 2009, as internal communication with Acer revealed that it believes that it can still meet this commitment. Acer now needs to transition its PCs to using no BFRs or PVC. The company is also rewarded for its commitment to phase out all phthalates, beryllium and compounds and antimony and compounds in all new products by 2012.

Acer scores poorly on e-waste even though it is reporting a recycling rate of 29.8 percent based on past sales, for desktops and notebooks, but only those sold and recycled in Taiwan. Acer needs to clarify its support for Individual Producer Responsibility and do more lobbying for Individual Producer Responsibility; extend its voluntary take-back and recycling programme beyond India and start sourcing recycled plastic.

Acer does a little better on the energy criteria, supporting global cuts in greenhouse gas emissions of 50 percent by 2050 and 30 percent by 2020 from industrialised countries (compared to 1990 levels) and calling for global GHG emissions to peak by 2015. Acer needs to set a target for absolute cuts in greenhouse gas emissions and start sourcing renewable energy.

### **HP Ranking = 4.5/10**

HP stays in 14th place with an increased score of 4.5 (up from 3.5), despite the lifting of the penalty point imposed for backtracking on its commitment to eliminate PVC and brominated flame retardants (BFRs) in computing products by end of 2009. In September 2009, HP released a moderately priced notebook for business customers with a cost neutral option of a PVC and BFR free configuration, except for the power supply and power cable. A condition for lifting the penalty point was putting a PC on the market free of PVC and BFRs. HP could improve its score on chemicals by committing to eliminate additional harmful substances and putting more products (including printers) on the market free of PVC and BFRs.

HP scores points on energy, because it discloses externally verified greenhouse gas emissions from its own operations and estimates the supply chain greenhouse gas emissions of 80 percent of its first tier suppliers. It also scores points for its goal to reduce greenhouse gas emissions of operations to 16 percent below 2005 levels by

2010, and for reporting its 2008 use of renewable energy as 4 percent of global energy consumption with a goal to double global purchases of renewable power to 8 percent by 2012.

On e-waste HP scores points for its support and lobby for Individual Producer Responsibility, it's recently launched free 'Consumer Buyback' recycling programme in the US for HP and Compaq-branded product waste and the information that it provides to customers on what to do with their discarded products. However, its voluntary take-back programme, although improving, continues to be weak and is still mainly oriented towards its business rather than individual customers. The company reports a reuse and recycling rate in 2008 of 17.5 percent, up from 15 percent in 2007, although more information is needed on how this is calculated. HP also needs to prove that energy recovery (namely, waste incineration) is not part of its 17.5 percent recycling performance and if so, exclude it from future calculations.

### **MICROSOFT Ranking = 2.7/10**

Microsoft stays in 15th position but with an increased score of 2.7 points, up from 2.5 points, as it has now engaged in an EU coalition supporting Individual Producer Responsibility. On other e-waste criteria, Microsoft fails to score any points.

Most of Microsoft's points are earned on the toxic chemicals criteria. The company has committed to removing PVC vinyl plastic and brominated flame retardants (BFRs) from its hardware products by or before 2010 and phthalates by the end of 2010. However, it needs to put products on the market that are free from BFRs in printed circuit boards before it can score points for this criterion.

On energy, the company gets points for reporting its total carbon dioxide equivalent emissions from its own operations, and for sourcing 24.4 percent of all the electricity used in 2007 from renewable sources, although it needs to provide more information on the Renewable Energy Certificates (RECs) that it is buying and commit to increase its use of renewable energy with a timeline.

### **FUJITSU Ranking = 2.7/10**

Fujitsu moves up the ranking by one place from penultimate (17th) position with a score of 2.4 to 16th place with 2.7 points, above Nintendo and Lenovo. Fujitsu scores equally poorly across the three issues.

On chemicals, Fujitsu is rewarded for having a chemicals management system in place and for committing to eliminate some phthalates in PCs by 2013. It scores double points for the Fujitsu Technology Solutions (formerly Fujitsu Siemens Computers) PCs with reduced PVC and BFRs, sold in the EMEA region, including Europe. Fujitsu plans to totally abolish the use of PVC and the Brominated Flame Retardant (BFR) HBCDD in PCs by the end of 2013, but scores no points on this criterion as it does not commit to phase out all BFRs.

On energy, Fujitsu scores points for supporting global cuts and the need for emissions to peak by 2020 (not 2015); reporting verified greenhouse gas emissions from its own operations and for reporting on the energy efficiency of its notebook and desktop PCs, albeit inadequately. Fujitsu has no commitment to reduce absolute greenhouse gas emissions and reports on renewable energy use only in Europe, which is at least 15 percent of purchased electricity in 2007.

Fujitsu is weakest on e-waste, but gains points for its voluntary programmes for the take-back and recycling of its discarded products. It provides information to some customers on what to do with their obsolete electronics. It also scores a point for weak support for Individual Producer Responsibility and reporting recycling rates in a few EU countries. However there is plenty of room for improvement on its provision of information to customers as well as its support for Individual Producer Responsibility.

#### **LENOVO Ranking = 3.5/10 - 1 = 2.5/10**

Lenovo drops from 16th to 17th position with its score remaining on 2.5 points, encumbered by a penalty point imposed for backtracking on its commitment to eliminate PVC and brominated flame retardants (BFRs) in all its products by the end of 2009. Lenovo's new timeline for meeting this commitment of end of 2010 is to be dropped and there is no new timeline. No timeline means no commitment.

On the toxic chemical criteria, although Lenovo has put on the market a monitor largely free of brominated flame retardants and PVC vinyl plastic, this one model (in two sizes) is insufficient to score a point. It is rewarded for committing to the phase out of beryllium (including alloys and compounds) and antimony and its compounds by 2012, but phthalates are still only reportable substances.

Lenovo reports a recycling rate of 2.16 percent of the weight of products shipped in 2007 and 7.74 percent of the weight of products shipped in 2000. However, almost 80 percent of that data is based on the amount of EU e-waste whose recycling was financed by Lenovo – by current market share – and may bear no relation to the amount of Lenovo branded e-waste actually recycled. Lenovo scores points for its relatively comprehensive voluntary take-back programme, for the information to individual customers in all the countries where take-back is provided and its use of recycled plastic.

Lenovo scores poorly on the energy criteria; it discloses greenhouse gas emissions from global operations in 2007, although these are not externally verified. It also scores points on energy efficiency, for having all global models of notebook, desktop and monitor introduced since the effective date of Energy Star 4 meeting the current Energy Star requirements, either in the basic models or as an option. However, Energy Star compliance is not supplied as standard for all models; for some models, customers can opt for non-Energy Star compliant PCs.

#### **NINTENDO Ranking = 1.4/10**

Nintendo remains in last place but with an increased score of 1.4 out of 10, up from 1 point in v.12, for the energy efficiency of its low power AC adaptor for the Nintendo DSi that meets the requirements on the external power supply in the Energy Star Program. On other energy criteria it loses a point due to a second year of increases in greenhouse gas emissions, despite a commitment to cut CO<sub>2</sub> emissions and other greenhouse gases by 2 percent over each previous year. Emissions in 2007 increased by 1.5 percent compared to 2006, following a rise of 6 percent in 2006. Nintendo retains a point on energy for disclosing carbon dioxide (CO<sub>2</sub>) emissions from its own operations.

On chemicals, Nintendo scores a point for putting on the market games consoles whose internal wiring is PVC-free. The company has banned phthalates and is monitoring use of antimony and beryllium and although it is endeavouring to eliminate the use of PVC, it has not set a timeline for its phase out.

It continues to score zero on all e-waste criteria.

**ตารางแสดงการประเมินผู้ผลิตสินค้าอิเล็กทรอนิกส์ในแต่ละเกณฑ์ จากคู่มือฉบับที่ 13**

v. 12 final scores, 19/6/09					
Position	Company	Chems	Waste	Energy	Total/51
1 (1)	NOKIA	15	9	14	38 = 7.5/10
2 (2)	Samsung	13	10	12	3 = 6.9 /10
3 (3)	Sony Ericsson	17	4	12	33 = 6.5/10
4 (7)	Philips	12	4	14	30 = 5.9/10
5 (5)	TOSHIBA	13	7	9	29 = 5.7/10
6 (6)	Motorola	11	6	10	27 = 5.3/10
7 (7)	SHARP	12	5	9	26 = 5.1/10
8 (12)	Sony	11	7	8	26 = 5.1/10
9 (11)	Apple	13	6	6	25 = 4.9/10
10 (10)	Panasonic	9	5	11	25 = 4.9/10
11 (4)	LGE	10	9	10	29 = 5.7/10 – PP = 4.7
12 (13)	DELL	8	7	14	29 = 5.7/10 – PP = 4.7
13 (11)	Acer	14	3	6	23 = 4.5/10
14 (14)	HP	9	6	8	23 = 4.5/10
15 (15)	Microsoft	10	1	3	14 = 2.7/10
16 (16)	Lenovo	8	7	3	18 = 3.5/10 – PP = 2.5
17 (17)	Fujitsu	5	4	5	14 = 2.7/10
18 (18)	Nintendo	4	0	3	7 = 1.4/10

**ตารางแสดงการประเมินผู้ผลิตสินค้าอิเล็กทรอนิกส์ในแต่ละเกณฑ์ จากคู่มือฉบับที่ 12**

v. 12 final scores, 19/6/09					
Position	Company	Chems	Waste	Energy	Total/51
1 (1)	NOKIA	15	9	14	38 = 7.5/10
2 (2)	Samsung	13	11	12	36 = 7.1/10
3 (3)	Sony Ericsson	17	4	12	33 = 6.5/10
4 (6)	LGE	10	9	10	29 = 5.7/10
5 (7)	TOSHIBA	13	6	9	28 = 5.5/10
6 (8)	Motorola	12	6	10	28 = 5.5/10
= 7 (4)	Philips	12	3	12	27 = 5.3/10
= 7 (9)	SHARP	12	5	10	27 = 5.3/10
9 (11)	Acer	14	4	7	25 = 4.9/10
10 (12)	Panasonic	9	6	10	25 = 4.9/10
11 (10)	Apple	12	6	6	24 = 4.7/10
12 (5)	Sony	9	6	8	23 = 4.5/10
13 (13)	DELL	8	7	10	25 = 4.9/10 – PP = 3.9
14 (16)	HP	7	6	10	23 = 4.5/10 – PP = 3.5
15 (15)	Microsoft	10	0	3	13 = 2.5/10
16 (14)	Lenovo	8	7	3	18 = 3.5/10 – PP = 2.5
17 (-)	Fujitsu	3	4	5	12 = 2.4/10
18 (17)	Nintendo	4	0	1	5 = 1/10