

Guide to Greener Electronics

2017 COMPANY REPORT CARD

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Methodology

TO EVALUATE COMPANIES in the Guide, Greenpeace uses publicly available information from each company, including corporate communications and CSR reports, public submissions to stakeholders and reporting bodies, as well as media coverage. Of the 17 companies included, Greenpeace engaged with 14 directly in preparing our assessments. Companies we did not meet with were Oppo, Vivo and Xiaomi, who declined to share or discuss information on their environmental performance.

For the 19th version of the Guide, overall grades awarded to each company are derived by an equal weighting of the impact area grades ($\frac{1}{3}$ each). Impact area grades are derived by the following weighting of criteria: Transparency (30%), Commitment (30%), Performance (30%), and Advocacy (10%). For companies where no positive or negative advocacy is identified in the 18 months prior to the publication of the Guide, impact area grades will be derived by equal weighting of Transparency, Commitment, and Performance.

Renewable Energy & Climate Change

TRANSPARENCY

Companies are evaluated on the scope and level of detail made publicly available on the greenhouse gas emissions and energy consumption of their own operations, as well as that of their product supply chain. Public information includes information from a company's website, annual reports, submissions to regulatory agencies or information clearinghouses such as CDP. In addition to detailed reporting of its scope 1, 2, and 3 (products, goods and services), energy, and greenhouse gas footprint, high-scoring companies will have published their suppliers, their respective tiers and what they are supplying, and an indication of how much they have contributed to the brand's energy footprint.

COMMITMENT

Companies are assessed on the strength of their commitment to powering their own operations and product supply chain with renewable energy. High-scoring companies will demonstrate:

- Adoption of a long-term goal of 100% renewable energy, covering both its own operations and its product supply chain;
- Adoption of near-term greenhouse gas targets or measurable renewable energy goals;
- Renewable energy procurement guidelines that prioritize high-impact methods of powering with renewables that demonstrate additionality, proximity to demand, and

sustainability, as opposed to purchase of unbundled renewable energy credits or carbon offsets.

- A clean energy siting policy to prioritize access to renewable energy for its own operations, informing the selection of suppliers who themselves are pursuing renewable energy as a source of electricity and discriminating against coal and nuclear power to meet infrastructure electricity demand.

PERFORMANCE

Companies are assessed on the strength of their measurable progress in reducing their greenhouse gas emissions and use of renewable energy to power their own operations and their supply chain. In reporting their renewable procurement, companies should follow the required and recommended disclosures established in the recently adopted Scope 2 Guidance of the Greenhouse Gas Protocol, which established clear reporting requirements for reporting market-based purchasing of renewable electricity. High-scoring companies also demonstrate:

- Efforts directly made by them or by their suppliers to meet electricity demand with the direct installation of renewable energy, and reduction of emissions through higher efficiency.
- Efforts directly made by them or their suppliers to meet their electricity demand through the deployment of additional renewable energy capacity through long-term Power Purchase Agreements or in partnership with local or community renewable energy developers or utilities.
- Efforts to select suppliers on the basis of their ability to manufacture and assemble the company's devices with facilities powered by renewable energy.
- Support or incentives offered to suppliers who are able to reduce their reliance on fossil fuels by transitioning their operations to renewable energy

ADVOCACY

Companies are evaluated on actions taken to advocate for ambitious policies at all levels of government that encourage wide-scale renewable energy generation and use. High-scoring companies also demonstrate:

- Top level advocacy with the national/regional policymakers for policies that result in greater access to renewable energy or greater amounts of renewable energy connected to the grid.
- Proactive advocacy with utilities for more access or for grid-wide investment in renewable energy.

- Proactive advocacy with companies in their supply chain to transition the supplier's operations to renewable energy.

Companies that are confirmed to have lobbied against renewable energy or climate policies in the past 18 months, either directly or through their membership in an industry association, will be appropriately penalized.

Sustainable Design and Resource Reduction

TRANSPARENCY

Companies are assessed on the scope and level of detail made publicly available on the amount and source of material resources used to manufacture their major product lines of personal electronic devices. Public information includes information from a company's website, annual reports, product lifecycle analyses, public research assessments and submissions to regulatory agencies such as the SEC (for conflict mineral sourcing information). High-scoring companies will include:

- Details on overall material use and the use of material from secondary sources.
- Disclosure of smelter list for conflict minerals, including information on due diligence efforts and certification compliance.
- Reporting on amount of material recovered through company takeback programs and its ultimate disposition, including utilization of closed-loop material flows.

COMMITMENT

Companies are assessed on the strength of their commitment both to transition their lines of personal computing devices to closed-loop and secondary sources of materials and to extend product lifespan and material recovery at end of life. High-scoring company commitments will include:

- Long-term commitment to secure 100% or high percentage of material flows from closed-loop or secondary sources.
- Near-term secondary materials targets for high-impact or priority materials

PERFORMANCE (CIRCULAR PRODUCTION)

Companies are assessed on their progress and corresponding plan to reduce consumption of virgin resources through the development of secondary material or closed-loop supply chains, including disposition of their products at end of life, as well as level of due diligence of efforts to secure minerals from sources that are not contributing to human rights abuses, such as armed conflict and child or slave labor. Evidence of progress by high performing companies will include:

- Publication of prioritized plan for which materials are important to transition to secondary or closed-loop sources.

- Device design and development of supply chain to deliver multiple materials from secondary or closed-loop sources.
- Deployment of product takeback system across all markets of sales.

PERFORMANCE (EXTENDING PRODUCT LIFESPANS)

Companies are assessed on whether their policies, product design, and customer support are oriented toward extending the useful life of their devices, thus slowing consumption of energy, resources, and other impacts in the supply chain. High-performing companies will show evidence of:

- Product design of their personal computing devices that enables the public to repair and maintain their device for a longer useful life.
- Publishing repair information and making spare parts accessible to customers in all sales markets.
- Product design and offering of components that allow users to upgrade their device to enable longer useful life.
- Offering refurbished products for sale in both developing and mature markets.

ADVOCACY

Companies are evaluated on actions taken to advocate for ambitious policies at all levels of government that directly or indirectly support the reduction of virgin material resources in the electronic sector. High-scoring companies will have:

- Engaged in top-level advocacy with the national/regional policymakers for "right to repair" policies that increase the public's right to access repair information and spare parts for devices.
- Support for certification or ecolabel standards that incentivize device product design that enables devices to be repaired.

Companies that are confirmed to have lobbied against repair or recycling legislation or standards in the past 18 months, either directly or through their membership in an industry association, will be appropriately penalized.

Hazardous Chemical Elimination: Products and Supply Chain

TRANSPARENCY

Companies are assessed on their publication of their efforts to reduce hazardous chemicals in both personal electronic devices and also manufacturing process chemicals within supplier factories. Leading companies will be able to show:

- Publication of the company's combined restricted substances list (product and manufacturing, also referred to as PRSL and MRSL) with strict thresholds for each chemical.

- Publication of the main suppliers involved in the manufacturing of personal electronic devices or their main components, including services provided to brand company and facility locations.
- Publication of annual aggregate findings of brand-conducted supplier audits (annual EICC code violations findings), with preference to companies which provide further details on findings beyond type of code violation and frequency.

COMMITMENT

Companies are assessed on their commitment to identify and eliminate hazardous chemicals from both their products and their supply chain. High-scoring company commitments will include:

- Commitment with ambitious near-term timeline to eliminate hazardous chemicals, for example: PVC, BFRs, beryllium, antimony trioxide, phthalates, in products.
- Roadmap and ambitious timeline to eliminate priority groups of hazardous chemicals from manufacturing process, including a) long-term objective for elimination of all hazardous chemicals, b) fast-track elimination (1-3 year) of relevant sub-groups of chemicals on the Combined RSL for community and worker health, e.g. specific volatile organic compounds (VOCs).
- Commitment to protect workers from harmful exposures by instituting comprehensive monitoring, disclosure of monitoring results to workers in a detailed, timely manner, and participatory training and capacity building for all workers and managers potentially exposed to hazardous chemicals, and grievance mechanisms with protection against retaliation.

PERFORMANCE

Companies are assessed on their progress of delivering commitments to eliminate priority groups of hazardous chemicals (as outlined in commitment) for products and manufacturing supply chain. High-performing companies will show evidence of:

- Progress in product hazardous chemical elimination including the completion of elimination of BFRs and PVC, and progress on beryllium, antimony trioxide, phthalates across all consumer electronics products, parts and accessories.
- Progress on manufacturing hazardous chemical elimination including demonstrated efforts to track process chemicals being used in the manufacture of brands' products as well as strict restrictions or bans on known hazards, such as benzene, n-hexane, VOCs, toluene, and others.
- Details of efforts to screen for hazardous chemicals and identify green chemical substitutes.

- Details of additional due diligence efforts, beyond supplier audits and corrective action resolution, to prevent worker health and safety hazards.

ADVOCACY

Companies are evaluated on their efforts to drive greater transparency on chemical use, hazardous chemical elimination and substitution at all levels of government and within the sector. Examples include:

- Support precautionary no-data, no-market REACH-style chemical regulations.
- Lobby for a global, publically available substitution case study database which uses comprehensive and precautionary hazards screening, i.e., GreenScreen.
- Motivate chemical suppliers and formulators to provide greater transparency on ingredients and invest in non-hazardous chemicals or alternative solutions.
- Participation in working group effort with explicit goal to eliminate hazardous exposures for workers in electronics supply chain, i.e., clean electronics production network.

Companies that are confirmed to have lobbied against stronger standards or legislation to eliminate the use of hazardous chemicals in IT products or in the manufacturing process in the sector in the past 18 months, either directly or through their membership in an industry association will be appropriately penalized.

Key

Throughout the Guide to Greener Electronics the following color and letter scale is used:














BEST



WORST

- A grades are green
- B grades are olive
- C grades are yellow
- D grades are orange
- F grades are red



Overall Grades		ENERGY	RESOURCES	CHEMICALS
FAIRPHONE	B	B	A-	B-
	B-	A-	C	B
	C+	C+	B-	C+
	C+	B	B-	C+
	C-	C	C	D
	C-	D+	D+	C
	D+	C-	C-	D
	D+	D	C-	D+
SONY	D+	C-	C-	D
	D+	C-	D	C-
HUAWEI	D	D	D+	D
	D	D	D	D+
SAMSUNG	D-	D	D	D-
	F	D	D-	F
	F	F	F	F
	F	F	F	F
	F	F	F	F

Renewable Energy & Climate Change		TRANSPARENCY	COMMITMENT	PERFORMANCE	ADVOCACY
APPLE	A-	B	A	A	A
HP	B	B	B	B	B
FAIRPHONE	B	A	C	B	-
DELL	C+	B	C	B	D
LENOVO	C	C	C	C	C
GOOGLE	C-	D	C	C	A
SONY	C-	C	C	D	B
ACER	C-	C	D	C	C
MICROSOFT	D+	C	D	D	A
LG	D	D	D	D	-
SAMSUNG	D	D	D	D	-
AMAZON	D	F	D	C	B
ASUS	D	D	D	D	-
HUAWEI	D	D	D	D	-
OPPO	F	F	F	F	-
VIVO	F	F	F	F	-
XIAOMI	F	F	F	F	-

Sustainable Design & Resource Reduction		TRANSPARENCY	COMMITMENT	PERFORMANCE Circular Production	PERFORMANCE Product Life Extension	ADVOCACY
FAIRPHONE	A-	A	A	B	A	A
DELL	B-	B	C	B	A	C
HP	B-	B	C	B	A	C
APPLE	C	B	B	C	D	F
LENOVO	C	B	D	C	C	B
ACER	C-	C	D	C	C	-
LG	C-	C	D	C	C	-
SONY	C-	B	D	C	D	-
MICROSOFT	D+	C	D	C	D	D
HUAWEI	D+	D	D	C	D	B
GOOGLE	D	D	D	C	D	D
ASUS	D	D	D	C	D	-
SAMSUNG	D	C	F	D	D	D
AMAZON	D-	D	F	D	D	D
XIAOMI	F	F	F	D	D	-
OPPO	F	F	F	F	D	-
VIVO	F	F	F	F	D	-

Hazardous Chemical Elimination: Products & Supply Chain

		TRANSPARENCY	COMMITMENT	PERFORMANCE	ADVOCACY
APPLE	B	B	B	B	B
FAIRPHONE	B-	C	B	B	B
DELL	C+	B	C	C	B
HP	C+	B	C	C	B
MICROSOFT	C	B	D	C	-
GOOGLE	C-	D	C	C	-
LG	D+	D	D	C	B
ASUS	D+	C	D	D	-
LENOVO	D	D	D	D	-
HUAWEI	D	D	D	D	B
SONY	D	D	D	D	-
ACER	D	D	D	D	-
SAMSUNG	D-	D	D	D	D-
AMAZON	F	F	F	F	-
OPPO	F	F	F	F	-
VIVO	F	F	F	F	-
XIAOMI	F	F	F	F	-



Acer

Acer is one of two Taiwanese manufacturers in this year's Guide. The company sells smartphones, tablets, PCs and other products around the world. Acer has room for improvement in all three impact areas assessed. Acer has begun to measure emissions beyond just its own operations; however, to really lead on energy, the company must set ambitious targets to power its own operations and the manufacturing of its products with renewable energy. On designing products to reduce overall resource consumption, here too, Acer needs to set more ambitious targets to use more than just recycled plastic in a few product lines. Acer has unfortunately stalled in meeting its commitment to phase out PVC and BFRs from all products, and has yet to set any targets to manage supply chain chemicals applied to manufacturing processes in an effort to protect worker health and safety.

Renewable Energy & Climate Change

C-

TRANSPARENCY. Acer reports energy consumption data for its own operations in its sustainability report, including information about “green electricity”; however, Acer does not disclose what portion of this energy is actual renewables versus credits.¹ Acer reports its scope 1 and 2 greenhouse gas emissions, as well as some scope 3 emissions for 13 main product lines.² Acer participates in CDP's supply chain program and requests that its suppliers also report to CDP; however, unlike other companies, Acer does not make its CDP reports public. Acer only published product carbon footprint data for one laptop. Acer does not disclose its manufacturing suppliers.

C

COMMITMENT. Acer has set a GHG emission reduction target of 60% by 2020, compared to 2009 baseline. This target does not appear to include its supply chain. Acer has also set a long-term goal to increase “green electricity” use by 50% with no deadline, and the majority of Acer's green electricity use thus far is via the purchase of renewable energy credits. In terms of supplier engagement, Acer has set a goal that 80% of its suppliers will set carbon reduction targets with CDP in 2017.

D

PERFORMANCE. Acer reported its 2016 GHG emissions to be 53% less than its 2009 baseline (pg 77, 2016/17 CSR report). Acer achieved these reductions largely through energy efficiency programs and the purchasing of RECs. Taiwan is the only region Acer reports to use energy from solar and wind sources. For Acer's operations in the US, Canada, Germany, Spain, Malaysia and Thailand Acer purchases RECs. Acer reported that in 2016, 86% of its suppliers reported scope 1 and 2 emissions data to CDP, and that 75% of its suppliers had set emission reduction targets, though no details are available.

C

ADVOCACY. Acer signed the American Business Act on Climate Pledge in the lead up to the Paris Agreement to support a strong global agreement.³

C

Sustainable Design & Resource Reduction	C-
<p>TRANSPARENCY. Acer reports that a limited number of its products use post-consumer recycled plastic and also reports on over volume of recycled plastic used in 2016.⁴ Acer publishes material composition data for its products. Acer does publish results of its take-back efforts in Taiwan, US and Japan on an annual basis (pg 75-76). Acer discloses its smelters for 3TG minerals, as well as its due diligence efforts to avoid sourcing these minerals from conflict sources.⁵</p>	C
<p>COMMITMENT. Acer has no specific commitments to increase the use of recycled materials in its products, just that it “actively strive[s] to use post-consumer recycled plastics (PCR) in products.”⁶ In 2017, Acer plans to launch a new case that is 40% smaller than old cases, thus reducing the amount of metal and plastic used, though details are unclear.</p>	D
<p>PERFORMANCE: CIRCULAR PRODUCTION. Acer’s efforts to reduce resource consumption are very limited. The company uses some amount of PCR plastic in two product lines: the All-in-One series and Display Unit models. Acer’s take-back efforts seem to extend beyond regions where required by law.⁷</p>	C
<p>PERFORMANCE: PRODUCT LIFE EXTENSION. Service manuals for many Acer products are made publicly available and spare parts can also be purchased for some products.⁸</p>	C
<p>ADVOCACY. No evidence found of positive or negative advocacy.</p>	-

Hazardous Chemical Elimination: Products & Supply Chain	D
<p>TRANSPARENCY. Acer does not publish its supplier list. Acer does publish a basic restricted substances list which includes threshold levels, and Acer also publishes a list of substances suppliers are expected to disclose to Acer if they are using them.⁹ Acer does not publish any information about process chemicals management at the moment, but the company has set this issue as a target for 2017 and is working this year on drafting a list of restricted process chemicals for suppliers making Acer products.¹⁰</p>	D
<p>COMMITMENT. Acer has yet to deliver on its 2009 commitment to advance the production of notebooks, desktops, and smartphones that do not include PVC and BFRs. Now, on its website, Acer acknowledges it has a Hazardous Substance Free (HSF) plan for PVC, BFR and phthalates. However, this plan does not include a timeline or roadmap.¹¹ Acer makes no reference to commitments to protect workers from harmful exposures to chemicals.</p>	D
<p>PERFORMANCE. So far, Acer has phased out PVC and BFRs from several product lines with the exception of power cords and other accessories. There are no plans with timelines for when this work will extend to all products. Beyond following the legal requirements of RoHS and REACH, Acer has set restrictions on just BFRs and phthalates. For other chemicals of concern including PVC, beryllium, antimony, and arsenic Acer asks that suppliers disclose to Acer that they are being used.¹² Acer has not set any public restrictions to manage workplace chemicals in its supply chain.</p>	D
<p>ADVOCACY. No evidence found of positive or negative advocacy.</p>	-

ENDNOTES

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Amazon

In addition to its reputation as one of the world's largest online retailers, through its Kindle e-readers and Fire tablets, Amazon is also the third-largest seller of tablet computers in the world.¹ With the recent success of the Amazon Echo, Amazon is leading the rapidly expanding smart speaker market as well. Unfortunately, Amazon remains one of the least transparent companies in the world in terms of its environmental performance, as it still refuses to report the greenhouse gas footprint of its own operations, a failure that is drawing the attention of its investors.² Amazon provides few details beyond what is legally required on its sourcing of materials that are going into its devices, nor does it publish any restrictions on hazardous chemicals in its devices or being used in its supply chain as other leading electronics brands provide. However, similar to its cloud computing division Amazon Web Services, Amazon has begun to purchase renewable energy at significant scale in the United States, and is deploying solar on its distribution centers. Amazon has also emerged as one of the leaders within the sector in pushing for stronger climate and renewable energy policy.

Renewable Energy & Climate Change

D

TRANSPARENCY. Amazon is one of only three companies in the Guide that publishes neither an accounting of its energy or GHG footprint at the corporate level, nor the supply chain energy footprint associated with manufacturing of its electronic devices. Amazon also does not report any product level energy performance data as Apple, HP, Dell, and many others do. While Amazon has recently begun to report details of its renewable energy procurement and claim the percentage of its operations that are renewably powered, it remains impossible to properly assess its efforts and trajectory of its emissions growth as there is no indication of the energy demand tied to its facilities.

F

COMMITMENT. Amazon has not established any GHG for its own operations, although it recently committed to deploy solar across its fulfillment centers worldwide.³ Amazon has not set any public reduction targets for its supply chain emissions, nor has it indicated whether its suppliers have begun to report their emissions or set any reduction targets.

D

PERFORMANCE. Separate from the renewable energy purchased on behalf of AWS for its data centers, Amazon has deployed renewable energy on the rooftops of some of its distribution facilities and purchased a significant amount of renewable energy in Texas. However, due to Amazon's lack of transparency, it is impossible to know whether these renewable energy purchases are keeping pace with Amazon's growth in those regions. Amazon does not appear to be measuring or attempting to manage its product supply chain footprint.

C

ADVOCACY. A significant bright spot is Amazon's increased willingness to support policies that will help reduce greenhouse gas emissions and support the deployment of renewable energy. Amazon was one of several IT companies who publicly urged President Trump to keep the US in the Paris Climate Agreement, and Amazon also joined Google, Microsoft, and Apple in filing an amicus brief in support of federal legislation that would limit carbon emissions from the US power sector.

B

Sustainable Design & Resource Reduction

D-

TRANSPARENCY. Amazon does not publish any data on the material composition of its products, including whether it utilizes any recycled inputs or the scale of take-back efforts, with the exception of where this is legally required (e.g. Virginia). Amazon does publish a conflict minerals report as required under the US Dodd-Frank Act, though with very little detail or analysis of its efforts.⁴

D

COMMITMENT. Unlike Apple and Fairphone, Amazon has not announced any commitments to use recycled or closed-loop inputs in its branded electronic devices, nor has it established any benchmarks for the performance of its take-back and recycling program.

F

PERFORMANCE: CIRCULAR PRODUCTION. Amazon publishes only basic data on its suppliers of conflict minerals as required under US law, and does not publish any additional information on whether the other materials that go into the Amazon devices are from sustainable sources. Amazon does publish detail on how to return devices for recycling to Amazon.⁵

D

PERFORMANCE: PRODUCT LIFE EXTENSION. Amazon does not publish any evidence that it is seeking to transition the material inputs for its devices to secondary and recycled sources. Amazon does offer free take-back programs in the US and India, providing free shipping to return devices for recycling, and for still functioning devices in the US. Amazon also offers exchange program across a range of device manufacturers.⁶

D

ADVOCACY. Amazon is a member of ITI, which has been lobbying to block Right to Repair legislation in several US states. If passed, this would provide important rights to customers in their ability to access affordable repair services, and in turn encourage customers to repair devices, extending the useful life of their device.

D

Hazardous Chemical Elimination: Products & Supply Chain

F

TRANSPARENCY. While Amazon highlights the importance it places on responsible sourcing,⁷ it provides little information beyond its broad supply chain standards.⁸ Amazon does not publish details on whether it has placed restrictions or eliminated hazardous materials not covered by the current Rohs standard, such as PVC, brominated flame retardants, or phthalates, as many leading companies have done. Similarly, Amazon does not publish an RSL to indicate how it is identifying and prioritizing the elimination of hazardous chemicals in its supply chain.

F

COMMITMENT. Amazon has not made any commitment to eliminate hazardous chemicals from its products or the manufacturing process of its supply chain. As an EICC member, Amazon has adopted a Supplier Code of Conduct that follows the EICC model standard.⁹

F

PERFORMANCE. Amazon does not report any voluntary elimination of hazardous chemicals from its products.

F

ADVOCACY. No evidence found of positive or negative advocacy.

–

ENDNOTES

- 1 <http://www.zdnet.com/article/amazon-tablet-shipments-grew-by-99-4-percent-in-2016/>
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B-



Apple

Since taking the reins as Apple’s CEO, Tim Cook has made protecting the environment a prominent piece of the company’s identity. Under Cook, Apple not only recognizes unequivocally that climate change is a real problem, but has publicly committed Apple to power its data centers and other operations with 100% renewable energy to address it. Apple became the first company to extend this commitment to its entire global supply chain in 2014, and has since made impressive progress, securing commitments from 14 suppliers to power their operations with enough renewable energy needed to manufacture Apple devices or components. Apple announced in April an ambitious long-term goal to transition the materials that go into its devices to come from 100% closed-loop sources, and eliminate the need to rely on the mining of new minerals. Apple’s leadership in reducing the impact of its supply chain on the planet is helping redefine expectations of corporate responsibility, playing a catalytic role in driving better performance by other companies. However, Tim Cook’s commitment to have Apple leave the planet “better than we found it”¹ is increasingly being undermined by his product design team. While Apple’s design engineers made it the first company to eliminate many hazardous chemicals from its devices, many of Apple’s latest devices are now designed in a way to make it much more difficult, if not impossible to repair or upgrade, shortening their useful life, and increasing the potential negative impacts of Apple’s products on the planet. Such a design strategy may help Apple’s profits in the short term, but risks jeopardizing Apple’s environmental reputation and the customer loyalty that has come with it.

Renewable Energy & Climate Change

A-

TRANSPARENCY. Apple provides excellent visibility into the energy performance of its own operations, providing detail on the energy demand of its facilities and the addition of renewable energy for each to advance toward its goal of being 100% renewable.² However, a similar level of transparency has not been present to assess Apple’s progress toward its 100% supply chain goal. The company recently took steps forward in reporting the aggregate impact of its supply chain renewable energy deals,³ also adding some minimal context on its total carbon footprint with respect to its 4 GW renewable energy goal⁴ and a high-level breakdown of its largest greenhouse gas contributors by category of supplier. Apple needs to upgrade its supply chain reporting to more closely represent its own operational reporting, as it currently does not report energy footprint by supplier, or even country or regional level carbon footprint information for its supply chain.

B

COMMITMENT. Apple was the first IT company to make a 100% RE commitment for both its own operations and its supply chain. It continues to lead the way in driving renewable energy in its supply chain, where nearly 80% of its greenhouse gas footprint currently lies. To its credit, Apple has pursued these goals with a high level of integrity, adopting additionality principles for its renewable energy procurement. Apple has set near-term goals of 4GW of renewable energy for its supply chain by 2020, 2GW in China specifically.

A

Renewable Energy & Climate Change (continued)

A-

PERFORMANCE. Apple has thus far been fairly aggressive in pursuing its 2020 goal to deploy 4GW of renewable energy in its supply chain, with Apple itself having deployed nearly 500MW of solar and wind in China, and has made significant progress with its suppliers as well. As of September, Apple has separately secured commitments from 14 of its suppliers to power the Apple-related portion of its operations with renewable energy by 2018/19.⁵

A

ADVOCACY. Apple's advocacy on the urgency of climate change and support for renewable energy has become more visible, particularly since the 2016 US presidential election. In addition to its efforts to engage its supply chain to switch to renewable energy through its Clean Energy Portal, Apple has also become more active in supporting state and national policies by encouraging the deployment of renewable energy, including its support of the Clean Power Plan in the US,⁶ and increased access to renewable energy in Japan.⁷ CEO Tim Cook also joined other tech company leaders in pushing President Trump to keep the US as a member of the Paris Climate Agreement.

A

Sustainable Design & Resource Reduction

C

TRANSPARENCY. Apple has made some improvements in its reporting of resources that go into its products, as well as its efforts to address environmental impacts and worker safety within its supply chain. To better align with its long-term goal to create a closed-loop supply chain, Apple eliminated the previous reporting of e-waste materials returned via its take-back program, as most of these materials were not being returned to Apple products. However, similar to its actions after the adoption of its 100% renewable energy supply chain goal, Apple's reporting on the recycled content in its products remains highly selective, limited to examples of where it has made progress. Apple needs to transition its reporting to show its progress toward its closed-loop goal, including total resource consumption and the amount of material it has thus far been able to secure from secondary materials if not from closed-loop material flows. Publication of its materials analysis and the priority materials it intends to focus upon as Fairphone has done would be an important contribution to driving faster change across the sector.

B

COMMITMENT. Apple's announcement of its ambitious goal to create a closed-loop supply chain for its devices, with the aim to end the company's reliance on mining,⁸ sends a powerful signal to its suppliers and the secondary materials market. Such a transition to secondary materials would have not only significant environmental benefits, but could also help address potential human rights abuses in the supply chain, such as use of child labor and minerals from conflict zones. Apple should establish more specific near-term milestones that show progress toward its long-term closed-loop goal, including specific targets for high-impact materials.

B

PERFORMANCE: CIRCULAR PRODUCTION. Building on its commitment for a closed-loop supply chain, Apple reports to have conducted material risk assessments across 44 elements in its products, identifying aluminum, tin, and cobalt and priority materials for developing a supply of secondary sources of materials, with early success in getting secondary materials into some devices. Apple has established an extensive take-back system through its stores and local partners across countries where it sells its products, though it does not make public which recycling partners it relies upon, or where that waste is sent. However, in the US at least, Apple is reported to maintain "must shred" agreements with recyclers it works with, forcing devices to be shredded instead of repaired or refurbished.⁹ Apple will need innovation in the recycling sector to achieve its closed-loop recycling goals. Apple's LIAM robot, capable of disassembling one model of its iPhone, highlights the possibility to recover higher levels of materials than is typically achieved in the whole product shredding approach commonly used in the recycling industry.¹⁰ However, Apple's product design, including the use of proprietary screws and extensive use of adhesives, continues to make disassembly, and thus higher material recovery, more difficult.¹¹

C

Sustainable Design & Resource Reduction (continued)

C

PERFORMANCE: PRODUCT LIFE EXTENSION. Apple’s failure to design many of its products to enable its customers to easily repair and upgrade their devices risks undermining Apple’s leadership on climate change and a closed-loop economy, particularly as its design decisions set the direction for many companies in the sector. While Apple has made some concessions to customers by lowering the cost of some repairs, product design decisions for its smartphones, laptops and tablets have consistently made it more difficult for customers to repair their devices, replace their batteries, or upgrade the devices so that they continue to stay in use. Apple clearly knows how to design products that are easy to maintain and upgrade, as seen by its higher-end desktop machines, but recent design changes for its latest flagship smartphones appear to have produced a product that is both more fragile and more difficult to repair. Apple does offer refurbished products for sale in several of its mature markets.

D

ADVOCACY. In sharp contrast to its positive leadership on climate change and renewable energy advocacy, Apple has emerged as one of the companies leading the opposition to “Right to Repair” legislation in several US states.¹² Apple has also blocked attempts to strengthen environmental electronics standards that would encourage device designs that are easier to repair, upgrade, and disassemble for recycling.¹³

F

Hazardous Chemical Elimination: Products & Supply Chain

B

TRANSPARENCY. Apple publishes a list of its top 200 manufacturing suppliers of companies assessed, though it lacks the detail of those published by Fairphone and Dell, which indicate which service or product each supplier is providing. Apple publishes its restricted substances list for products (PRSL), and also published a list of substances restricted for manufacturing uses (MRSL).¹⁴ Apple also publishes the overall non-compliance findings of audits on a semi-annual basis. Apple’s individual product report consistently reports which hazardous materials are in the product.

B

COMMITMENT. Apple was the first electronics manufacturer to commit to eliminating PVC and BFRs from its products, and since has gone beyond current Rohs standards to include additional hazardous chemicals such as beryllium, antimony trioxide, and phthalates.¹⁵ Apple has also committed to restrict several known hazardous chemicals from all manufacturing processes (benzene, n-hexane, toluene, and chlorinated organic compounds).¹⁶

B

PERFORMANCE. Apple has eliminated additional hazardous chemicals beyond existing standards from its products, such as beryllium, antimony trioxide, and phthalates. Apple has restricted the use of benzene, n-hexane, toluene, and chlorinated organic compounds from manufacturing processes for Apple products. To help reduce worker exposure to hazardous chemicals in the factory, Apple has done chemical exposure mapping at its final assembly suppliers, and is now expanding to subcomponent manufacturing sites.¹⁷

B

ADVOCACY. Apple is part of the Clean Electronics Production Network (CEPN) with a goal to move toward zero exposure of workers to toxic chemicals in the electronics manufacturing process.¹⁸

B

ENDNOTES

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Asus

Asus sells smartphones, tablets, and PCs, and like Acer, its Taiwanese peer, the company shows room for improvement in all three impact areas. Despite setting an emissions reduction target for its own operations, the company has not paired this with any plan to source renewable energy, and as a result, its own emissions in 2016 increased compared to 2015. To lead on energy Asus must set aggressive targets to adopt RE for its own operations and its manufacturing supply chain. While Asus reports using recycled plastic, there is no transparency on the scale of this effort, nor any public target to increase the use of secondary materials to support circular production methods. Asus outperforms Acer in product detox, as the company has banned the use of antimony and beryllium outright. Next, Asus needs to be more transparent about the levels at which it restricts other chemicals in its products, while also publishing an MRSL.

Renewable Energy & Climate Change

D

TRANSPARENCY. Asus is unique among Asian manufacturers in that it publishes the names of some key component suppliers.¹ Asus reported Scope 1 and 2 GHG emission. Scope 3 emission disclosure is limited to business travel.² The company reported absolute emission data for 30 key suppliers (their scope 1 and 2 emissions) and that 70% of those suppliers have GHG reduction goals.³ Asus does not report product carbon footprint data.

D

COMMITMENT. At the corporate level, Asus has set a target of reducing GHG emissions associated with energy use by 50% by 2025, compared to 2008 levels, but few specifics are shared on how Asus will achieve this. Asus has set no targets for supply chain emissions reduction or for procuring renewable energy.⁴

D

PERFORMANCE. Asus reports that in 2016 its emissions were down 23% compared to 2008, but up slightly from last year. The company reports no use of renewable energy in its own operation or among its suppliers.⁵

D

ADVOCACY. No evidence found of positive or negative advocacy.

-

Sustainable Design & Resource Reduction	D
<p>TRANSPARENCY. Asus states it has used recycled plastics in products since 2015, but there is no information about how much, or which products. To improve on transparency, Asus should publish information about the material composition of its products, including what materials were from recycled sources. On the plus side, Asus reports some details on its take-back efforts,⁶ and the company also discloses its smelter list⁷ and reports on its due diligence efforts for conflict minerals.⁸</p>	D
<p>COMMITMENT. While Asus publishes considerations for its product designers that include language on lifecycle extension and design for easy recycling, there are no measurable goals or timelines.⁹ To improve, Asus must set specific targets, including targets around the use of recycled materials.</p>	D
<p>PERFORMANCE: CIRCULAR PRODUCTION. While Asus leaves room for improvement in the sourcing of recycled materials, the company is active in the management of products once they reach end of life. The company offers take-back services beyond where legally required and reports on overall take-back. In 2016 take-back covered 63% of the market, and the recycling rate was 12.21% of total product weight of global sales volume.¹⁰</p>	C
<p>PERFORMANCE: PRODUCT LIFE EXTENSION. Asus's guidelines appear to support product lifespan extension, but it's unclear to see how these guidelines are applied to new Asus products. Asus's ZenFone Max, for example, does not embody the modular design guideline Asus details, and this smartphone's battery and display cannot be easily replaced.¹¹ Spare parts and repair manuals are available only as part of repair services.</p>	D
<p>ADVOCACY. No evidence of positive or negative lobbying for circular economy or Right to Repair laws.</p>	-

Hazardous Chemical Elimination: Products & Supply Chain	D+
<p>TRANSPARENCY. Asus discloses a very basic list of its controlled substances for products (PRSL); however, without also publishing threshold information for these chemicals, it's impossible to know if they are controlled at a safe limit.¹² To improve, Asus must provide this information as well as an MRSL, as Apple, Microsoft, and Dell have done. On the plus side, Asus is unique among the Asian manufacturers to publish the names of some of its key suppliers, though the company does not go as far as to provide a full list of suppliers, complete with addresses.¹³</p>	C
<p>COMMITMENT. While Asus has already shown progress on the elimination of some hazardous product chemicals (beryllium, antimony, and some phthalates), the company has not set a deadline to complete the phase out of BFRs and PVC from all products.¹⁴</p>	D
<p>PERFORMANCE. In Asus's 2016 report the company reports on its progress to eliminate certain product chemicals, including beryllium and antimony since 2013 and certain phthalates since 2015.¹⁵ Asus also reports some progress on eliminating BFRs and PVC in some parts and products, but has made exceptions for system modules, PCBs, connectors and cables.¹⁶ The company also reports a ban on benzene and n-hexane since 2016; however, this ban does not seem to impact all workers in the supply chain, as later the company states only workers aged 16-18 should not handle benzene. The company does not provide any further details on how this is being applied in its supply chain.¹⁷</p>	D
<p>ADVOCACY. No evidence found of positive or negative advocacy.</p>	-

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C+



Dell

Currently the world's third largest in PC sales,¹ Dell returns to the Guide having just established new sustainability goals for the recently merged Dell-EMC juggernaut. While not typically known as the trend-setter in hardware design, Dell's use of closed-loop material and product designs that are highly repairable are certainly worthy of greater imitation by other companies. While Dell's transparency is also generally to be commended, its recently adopted commitments lack adequate ambition and specificity, particularly its commitments on renewable energy and resources. However, while Dell's recently adopted Climate Policy Principles demonstrate a strong understanding of the climate science and urgency to address climate change,² Dell lags behind its peers in charting an aggressive path to reduce its emissions by driving renewable energy deployment, both for its own operations as well as its manufacturing supply chain.

Renewable Energy & Climate Change

C+

TRANSPARENCY. Dell published a more detailed breakdown of its major suppliers than most other companies and also provides a high-quality breakout of its greenhouse gas emissions across its own operations and manufacturing supply chain, and renewable energy percentage for its own electricity consumption.³ Dell published carbon footprint data for a number of its products, but done since 2015.⁴ Dell has had important success in getting 90% of its suppliers by spend to report their emissions to CDP.⁵ As Dell hopefully moves on to setting more specific GHG and renewable energy goals for its supply chain, Dell should provide clear reporting on how it is making progress toward those goals.

B

COMMITMENT. Dell has committed to source 50% of its own electricity demand from renewable sources by 2020, and also set an absolute GHG reduction target of 40% (market based from 2011 baseline). Dell has not included its supply chain footprint in this target, but has at least committed that 95% of its suppliers (direct materials spend and key logistics) will set specific GHG targets and report on their emissions inventory.⁶ Missing from Dell's commitment is whether it plans to meet its renewable energy and GHG targets by adding new renewable sources of energy to the grid where it has significant operations, as Apple, Google, and other major internet companies have done to date or if it will choose to pursue unbundled renewable energy credits that have little impact in driving new renewable investment.

C

PERFORMANCE. Dell has made progress in increasing the percentage of renewable energy powering its operations, reporting 24% of Dell's own electricity consumption in 2016 as renewable. As noted above, greater clarity is needed on how Dell has procured its renewable electricity supply to date. While there is evidence of deployment that is unquestionably additional, such as its onsite solar in India,⁷ for much of Dell's existing renewable purchases it remains unclear whether Dell has sought to drive new and additional supply of renewable energy onto the grid, or has simply purchased unbundled RECs from existing sources. Suppliers representing 90% of Dell's direct materials spend reported their emissions to CDP in mid-2016, and 81% of those reporting had emissions targets.⁸

B

Renewable Energy & Climate Change (continued)

C+

ADVOCACY. Unlike recent leadership exhibited by Apple, Microsoft, Amazon, and Google, Dell has remained largely silent in terms of its latest support of climate and clean energy policy. Despite Dell CEO Michael Dell's presence on President Trump's manufacturing council, Michael Dell did not signal any public opposition to President Trump's proposal to withdraw the US from the Paris Climate Agreement.

D

Sustainable Design & Resource Reduction

B-

TRANSPARENCY. Dell ranks near the top in terms of transparently reporting about the use of recycled materials. Dell reports its overall use of recycled inputs, including open-loop PCR plastic, closed-loop plastic, and recycled carbon fiber.⁹ Dell also reports out on its take-back efforts.¹⁰ Dell publishes material composition sheets for many of its products, which include information about what, if any, materials were recycled.¹¹ Finally, Dell publishes its smelter list and due diligence efforts to avoid conflict mineral sourcing.¹²

B

COMMITMENT. Dell has set two goals related to resources: to use 100 million pounds of recycled-content plastic and other sustainable materials by 2020 and to recover 2 billion pounds of used electronics by 2020. These goals are measurable and include a near-term deadline, which is good. To improve, Dell could expand upon the definition of "other sustainable materials" and establish a roadmap for sourcing greater amounts of these materials from closed-loop sources.

C

PERFORMANCE: CIRCULAR PRODUCTION. Dell stands out as one of the few companies in the Guide to be using closed-loop materials. Since 2014 the company has sourced plastic for its computers from its own take-back channels. In 2016, Dell used closed-loop plastics in 91 different products.¹³ Dell goes far beyond legal requirements to offer take-back in 83 countries and accepts even non-Dell products. However, despite Dell's clear "no export" policy, in 2016, Basel Action Network documented the illegal shipment of Dell e-waste to developing countries.¹⁴

B

PERFORMANCE: PRODUCT LIFE EXTENSION. Dell's products tend to score highly in iFixit repairability assessments in recent years. Most products have batteries which are easy to replace with upgradable memory, however the 2017 XPS 13 (9343/9350/9360) laptop is not upgradable.¹⁵ Dell's design principle to use standard fasteners in place of adhesives makes repairs easier.¹⁶ Like HP, Dell provides repair manuals and spare parts.¹⁷ Dell sells refurbished products in mature markets.¹⁸

A

ADVOCACY. As a member of ITI, which has lobbied against fair repair legislation, Dell would have earned a D, but for the fact that Dell shares its learnings on circular economy efforts with other business leaders and the public more broadly.¹⁹

C

Hazardous Chemical Elimination: Products & Supply Chain

C+

TRANSPARENCY. Of the companies assessed, with the exception of Fairphone, Dell publishes the most detailed list of its manufacturing suppliers and includes addresses and function provided to Dell.²⁰ Dell publishes its restricted substances list for products (PRSL),²¹ and as of May 2017, Dell also published a list of substances restricted for manufacturing uses (MRSL).²² Finally, Dell publishes the aggregate non-compliance findings of supply chain code of conduct audits on a semi-annual basis.²³

B

COMMITMENT. Dell was the first company to commit to phasing out BFRs and PVC from all products by 2009, but later Dell backtracked on this commitment. Dell (and EMC) now have a more vague goal as part of Dell's 2020 plan: to phase out environmentally sensitive materials as viable alternatives exist. Dell maintains a goal to eliminate BFRs and PVC; however, Dell no longer has a timeline for this work.²⁴ Beyond BFRs and PVC, Dell has committed to phase out 4 phthalates ahead of the EU deadline.

C

PERFORMANCE. Dell offers products that are designated as Halogen Free or BFR/CFR-Free products; however, beyond these lines Dell's phase-out work is incomplete, with exemptions made for internal plastic, components such as circuit boards, electronic components, fans, cables, printer fuse assemblies and electrical assemblies contained in Dell products.²⁵ While Dell monitors the use of antimony and beryllium, it has not set elimination targets or threshold restrictions. Dell should establish a timeline for phasing out these materials as Apple has already done. Dell's recently published list for manufacturing chemical restrictions includes bans on the use of benzene, n-hexane and toluene in cleaning and degreasing procedures only.

C

ADVOCACY. Dell is part of Clean Electronics Production Network (CEPN) with a goal to move toward zero exposure of workers to toxic chemicals in the electronics manufacturing process.

B

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FAIRPHONE

Fairphone

Fairphone operates at a much smaller scale than the rest of the companies in the Guide, and in its brief history has offered only two versions of a single product, the Fairphone smartphone. Fairphone set out to try to solve many of the IT sector's toughest and most important problems: design a phone and a supply chain to build it that does not exploit its workers or the planet. While Fairphone has not established the level of corporate-wide reporting and commitments to address the environmental impacts of its supply chain that larger companies have, Fairphone has made important breakthroughs in modular design that make it easy to repair and upgrade, in contrast to recent designs by Samsung and other large smartphone manufacturers that are heading in the opposite direction. Fairphone currently only sells its smartphones in the European market, though has aspirations of expanding beyond.

Renewable Energy & Climate Change

B

TRANSPARENCY. Fairphone has greatly added to its supply chain transparency by creating an online map of its supply chain.¹ While Fairphone does not publish corporate-level greenhouse gas emissions, it has produced a very detailed life-cycle analysis (LCA) for the Fairphone 2, which includes detailed emissions estimates for its only product, including breakdown of major components and final assembly.² Fairphone requests energy data from its suppliers, though has received such data only from its final assembly supply partner. Fairphone should ultimately report its energy footprint at a corporate level, including amount of renewable energy used to manufacture its products, but the level of detail and transparency in the LCA of its sole product currently provides significant insight into Fairphone's energy footprint.

A

COMMITMENT. Although Fairphone does not set a GHG reduction goal or renewable energy commitment at a corporate level as many of the larger companies do, the company is committed to using a lifecycle analysis approach to manage sourcing and selection of materials, to avoid trade offs/burden shifting unintentionally. Fairphone should set more concrete goals for addressing its GHG emissions and recognize the opportunity to play an influential role both through its own procurement and through collaboration and policy advocacy to shift its supply chain away from coal and toward renewable sources of energy.

C

PERFORMANCE. Fairphone's modular product design has been deliberately geared to reduce the carbon footprint of its product, enabling longer product life by making it easy to repair the device, and also making it possible to upgrade the phone to extend its usefulness. Fairphone's recent offering of an upgradable camera modules represents a major step forward in reducing the carbon impact of smartphones by extending product life. According to Fairphone, extending product use from three to five years reduces the carbon footprint by 30%.³ Fairphone also has sought to reduce the carbon footprint of its smartphones by making some accessories such as cables optional rather than included in purchase by default.

B

ADVOCACY. No evidence found of positive or negative advocacy.

-

Sustainable Design & Resource Reduction

A-

TRANSPARENCY. With the publication of a very detailed life cycle analysis, Fairphone has set a high bar on reporting the resource consumption involved in the production of its smartphone.⁴ Fairphone also recently published a detailed materiality assessment of its phones, providing a prioritization of opportunities for having an impact on the supply chain of 10 priority materials.⁵ This assessment includes an analysis of the best recycling methods to recover the most material while also generating the least amount of emissions.

A

COMMITMENT. Fairphone's goals to improve product longevity and to improve both recycling of electronics and sourcing of recycled and closed-loop materials for its devices are central to its business model and differentiation in the marketplace.⁶ Fairphone's materiality assessment identified 10 priority materials for the development of more detailed roadmap for addressing the impact of materials going into its devices. Fairphone also commits to provide spare parts and repair manuals for its products directly to the end user.

A

PERFORMANCE: CIRCULAR PRODUCTION. Along with Dell, Fairphone has shown early leadership in establishing a sustainable material supply. Fairphone currently reports using 50% of recycled plastic and tungsten.⁷ In addition to securing certification for tantalum, tin, and tungsten "conflict minerals," Fairphone has taken extra steps to secure a fair trade certified supply of gold for its devices.⁸ Fairphone has a take-back program for all of EU for its products and expressly identifies where recycled phones will be sent. Additional progress on the ten materials identified in its own materiality assessment will put pressure on global manufacturers to rethink the "take, make, waste" model that has been difficult to displace.

B

PERFORMANCE: PRODUCT LIFE EXTENSION. The Fairphone 2's modular design allows the end user to easily replace commonly failing or damaged components at a low cost, and most importantly, without having to replace the entire phone, as evidenced by Fairphone 2 scoring 10/10 on the iFixit repairability rating system. Fairphone's recent offering of upgradable camera modules represents a major step forward in reducing the carbon impact of smartphones by extending product life.⁹ Fairphone makes repair manuals and spare parts directly available to its customers, further facilitating maintaining its devices for long life.

A

ADVOCACY. Though much smaller in economic size than other companies in the Guide, Fairphone has been among the most active in pushing for policies and standards to raise the bar on minerals procurement, supporting both the adoption of conflict mineral legislation in the EU¹⁰ and also supporting the adoption of more stringent due diligence procurement standards in the Netherlands.¹¹

A

Hazardous Chemical Elimination: Products & Supply Chain

B-

TRANSPARENCY. Fairphone publishes restrictions on hazardous chemicals inside its devices including phthalates, brominated flame retardants, and halogenated flame retardants.¹² Fairphone should follow the lead of larger brands and publish a complete restricted substances list for both product and process chemicals with thresholds that cannot be exceeded by its suppliers.

C

COMMITMENT. Fairphone has eliminated those hazardous materials from within product as required by Rohs, and have fully eliminated PVC, and largely eliminated BFR, HFRs, and phthalates. On manufacturing process chemicals, Fairphone has thus far committed to eliminate benzene and n-hexane from use in final assembly.¹³ Fairphone should adopt more explicit commitments to prioritize the elimination or substitution of hazardous chemicals from the manufacturing process.

B

Hazardous Chemical Elimination... (continued)

B-

PERFORMANCE. In addition to the elimination of certain classes of hazardous chemicals, Fairphone has sought work directly with its suppliers to limit the amount of overtime of workers in its suppliers, or hiring of temporary workers, both of which can undermine worker safety and increase the exposure risks from workplace chemicals.

B

ADVOCACY. Fairphone is part of the Clean Electronics Production Network (CEPN) with a goal to move toward zero exposure of workers to toxic chemicals in the electronics manufacturing process.¹⁴

B

ENDNOTES

1 <https://www.fairphone.com/en/how-we-work/mapping-phone-made/>

2 https://www.fairphone.com/wp-content/uploads/2016/11/Fairphone_2_LCA_Final_20161122.pdf

3 <https://www.fairphone.com/en/upgrade-fairphone2-camera/>

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5 <https://www.fairphone.com/en/2017/02/01/fairer-materials-a-list-of-the-next-10-were-taking-on/>

6 <https://www.fairphone.com/en/our-goals/>

7 <https://www.fairphone.com/en/2016/06/20/fairphone-2-good-vibrations-with-conflict-free-tungsten-2/>

8 <https://www.fairphone.com/en/2016/01/27/how-we-got-fairtrade-certified-gold-in-the-fairphone-2-supply-chain/>

9 <https://www.fairphone.com/en/upgrade-fairphone2-camera/>

10 <https://www.fairphone.com/en/2017/03/21/new-eu-conflict-mineral-legislation/>

11 <https://www.fairphone.com/en/2017/06/21/fairphone-wants-to-increase-supply-of-fair-gold/>

12 <https://support.fairphone.com/hc/en-us/articles/215392683-How-about-hazardous-materials->

13 <https://support.fairphone.com/hc/en-us/articles/215392683>

14 <https://www.greenamerica.org/media-mention/us-network-targets-solvent-and-adhesive-alternatives-electronics>

D+



Google

Long known as an internet and software focused company, Google has rapidly expanded its line of Google-branded personal computing devices with its Pixel smartphones and laptops, as well as its Google Home smart speaker, as it moves to compete more directly with Apple in providing a hardware and software product that is tightly integrated. However, in sharp contrast to the environmental leadership we have seen from Google in its data centers that deliver Search, YouTube, and the company's other online products, the hardware side of Google lags significantly behind Apple, HP, Dell, and to a lesser extent Microsoft, in designing and manufacturing devices in a way that minimizes their impact on the planet. Google has begun to make some improvements in its transparency and goal setting, but will need to move much more aggressively if it hopes to catch up to Apple and other leaders.

Renewable Energy & Climate Change

C-

TRANSPARENCY. Google provides above average reporting of the energy and climate footprint of its data centers and other Google-owned facilities, including important details on its renewable energy purchases. However, Google ranks near the bottom of the sector in providing details on its product supply chain footprint. Along with Amazon, Google is only one of a handful of companies that do not report their product-related supply chain emissions, refusing to break them out separately from other Scope 3 emission categories such as business travel and construction. Unlike Apple, Microsoft, Dell, HP and others, Google does not even provide a list of its suppliers by spend.

D

COMMITMENT. Along with Facebook and Apple, Google was among the first global brands to adopt a long-term goal to power its operations with 100% renewable energy, and has set a mid-term goal to triple its renewable energy consumption linked to its own operations to 3.3GW by 2025. However, Google has yet to extend its 100% renewable commitment to its product supply chain as Apple has, nor has it set supply chain greenhouse gas reduction targets as HP has done. Google has recently established short-term goals to increase the reporting of emissions and adoption of greenhouse gas reduction targets among its suppliers, with the benchmark set for 2017 that 90% of its suppliers will set GHG reduction goals.¹

C

Renewable Energy & Climate Change (continued)

C-

PERFORMANCE. Google continues to aggressively pursue access to renewable energy both for its US operations and increasingly for its own operations internationally, totalling 2.6GW of renewable energy generation, currently the largest procurement of renewable energy by any corporation.² However, Google should let that leadership speak for itself, and cease its current claim that it has reached 100% renewable power for its own operations in aggregate globally. Attempts to claim excess “credit” from renewable energy procured in one region or country to be used to atone for its demand for dirty energy in another part of the world are not appropriate. Such claims are misleading, and undermine the bar for renewable leadership by corporations as well as Google’s long-standing principle of driving new renewable energy supplies in the same region its operations are drawing from the grid. Google should continue that principled approach as it seeks to build a renewably powered supply chain for its products. It is encouraging that Google is able to report that a high percentage of its suppliers have adopted emission reductions targets.³ Hopefully progress on both levels will help improve Google’s reporting on its supply chain footprint.

C

ADVOCACY. Support for stronger and smarter climate and renewable energy policies by Google has been recognized as a consistent area of leadership in our evaluations of the IT sector stretching back to 2010. This has continued in 2017. Google was among several IT companies that spoke out publicly to urge officials in the Trump administration to keep the United States a member of the Paris Climate Agreement, Google also joined Amazon, Microsoft, and Apple in filing an amicus brief in support of regulations by the US EPA that would set carbon reduction goals for the US power sector. Google has been engaged in policy advocacy outside the US as well, supporting efforts to create access to renewable energy in Taiwan, as well as stronger climate and energy policy adoption in the EU.

A

Sustainable Design & Resource Reduction

D

TRANSPARENCY. Similar to Google’s reporting on its product energy footprint, Google lags far behind sector leaders in providing meaningful detail on reporting useful information to create a baseline on the amounts of material resources that are currently going into Google’s devices, and the extent to which Google has been successful in setting priorities and achieving meaningful resource reductions. Google does provide higher quality details on its efforts to source conflict minerals from certified conflict free smelters,⁴ but only provides select recycled content information on Google Home and Chromecast in its environment report, and similarly limited information on its product take-back program.⁵

D

COMMITMENT. Google underscored the importance of moving away from our current take-make-waste linear production model, and engaged in some thoughtful leadership based on early success with pilot projects in the operation of its data centers. However, Google has yet to embrace any measurable commitments to transition its hardware products to a closed-loop supply chain or to utilize higher percentages of secondary materials in its products.

D

PERFORMANCE: CIRCULAR PRODUCTION. Absent a more tangible commitment to closed-loop production, Google has taken only some small steps toward a more circular model. In addition to the use of recycled plastics in its Google Home and Chromecast devices, Google has also identified the importance of expanding its mineral resource due diligence to give a greater focus on cobalt and copper mining. Google’s Pixel product design has been above average overall in terms of ease of disassembly at end of life, including the use of non-proprietary screws and modular parts.

C

Sustainable Design & Resource Reduction (continued)

D

PERFORMANCE: PRODUCT LIFE EXTENSION. Google's decision to abandon the Project Ara modular smartphone platform was a significant blow to hopes of a more sustainable smartphone design, but Google's Pixel has at least managed to incorporate some basic elements of modular component design that should help facilitate repair and greater product longevity. The decision to not follow Apple and Samsung and stick with an aluminum case rather than glass in the recently announced Pixel 2 is promising. Google should build on this relative strength to deliver smartphones, tablets and PCs that are durable and can be easily repaired and upgraded, as HP, Dell, and Fairphone have already delivered.

D

ADVOCACY. While Google has been supportive of circular economy thought leadership initiatives, Google is also a member of ITI, which has been lobbying to block Right to Repair legislation in several US states. If passed, this legislation would provide important rights to customers in their ability to access affordable repair services, and in turn encourage customers to repair devices, extending the product's useful life.

D

Hazardous Chemical Elimination: Products & Supply Chain

C-

TRANSPARENCY. Unlike leaders Apple, Dell, HP, and Fairphone, Google does not publish its list of suppliers. Google's recent publication of its first Restricted Substances Specification addresses a critical gap between Google and the other leading companies, setting limits if not outright prohibition of certain chemicals from its product and from the manufacturing process. Google recently reported on its overall supplier audit program and what measures it has undertaken to address non-compliance issues.

D

COMMITMENT. Google's recent decision to publish its [Restricted Substances Specification](#) helps close an important gap for Google, as it joins Apple, Dell, and Microsoft in committing to eliminate a range of hazardous chemicals from both its products and its manufacturing process.

C

PERFORMANCE. Google's recently published RSS indicates that BFRs and PVCs have been prohibited for use in all materials, as Apple has done. Similarly, Google has restricted the use of antimony trioxide, beryllium and phthalates. Google has also restricted the use of benzene, n-hexane and toluene in supplier factories for cutting and degreasing processes. Google suppliers are required to perform an alternatives assessments using a comprehensive chemical hazard assessment framework such as the GreenScreen® for Safer Chemicals or the US EPA Safer Choice Criteria.

C

ADVOCACY. No evidence found of positive or negative advocacy.

—

ENDNOTES

1 <https://static.googleusercontent.com/media/www.google.com/en/about/assets/pdf/2016-Responsible-Supply-Chain-Report.pdf>, p.17.

2 <https://static.googleusercontent.com/media/www.google.com/en/green/pdf/google-2016-environmental-report.pdf>

3 <https://static.googleusercontent.com/media/www.google.com/en/about/assets/pdf/2016-Responsible-Supply-Chain-Report.pdf>

4 <https://static.googleusercontent.com/media/www.google.com/en/about/assets/pdf/2016-Responsible-Supply-Chain-Report.pdf>

5 https://support.google.com/store/answer/3036017?hl=en&ref_topic=3244667

C+



HP

While much has changed for HP in the past two years, including a cleaving of the company into a separate hardware division, HP Inc is still the world's largest manufacturer of PCs.¹ HP's transparency is among the best in this year's Guide, providing clear and detailed reporting of its own operational footprint, and an increasing amount of detail on its supply chain, material flows in its products, and chemicals restricted in both products and manufacturing processes. While HP was one of the first companies to establish greenhouse gas reduction goals across its supply chain and is making progress toward its long-term goal of 100% renewable energy for its own operations, stronger ambition is needed to reduce its supply chain emissions. Currently one of HP's most important contributions to charting a more sustainable path for the sector has come in product design that is better for the planet. HP has shown that it is more than possible to produce devices, including tablets, that are easy to repair and upgradable, in sharp contrast to recent offerings from Apple, Samsung, and other device manufacturers that are increasingly designing their devices in ways that make it difficult if not impossible to repair or upgrade.

Renewable Energy & Climate Change

B

TRANSPARENCY. HP provides thorough reporting of its own energy footprint (scope 1 & 2), including its overall use of renewable energy and progress toward its GHG reduction goals, and publishes product footprint data for a large percentage of its products.² HP also publishes a detailed supplier list³ and provides above average reporting of its supply chain emissions,⁴ allocating emissions into clear categories that are supply chain related, rather than kept bundled under a broader Scope 3 label. HP reports steady progress in getting its suppliers to report their scope 1 and 2 emissions associated with HP production, but greater detail and allocation of what is effectively 90% of HP's GHG footprint at both the country and supplier level, including the percentage of renewable energy, should be added.

B

COMMITMENT. HP is one of several companies in the Guide that have adopted the long-term goal to power their own operations with 100% renewable energy, and HP has also set a mid-term goal of 40% renewable energy by 2020, combined with a GHG reduction goal of 25% by 2025. HP deserves credit for being one of the first to establish a supply chain GHG reduction target, with dual targets of reducing first-tier production supplier and product transportation-related GHG emissions intensity by 10% by 2025, and a gross reduction of 2 million tonnes.⁵ Greater ambition is needed, however. HP should follow Apple's lead and expand its commitment to become 100% renewably powered to its supply chain, where the vast majority of its carbon footprint lies. When product energy use by the customer is excluded from HP's footprint, manufacturing accounts for nearly 90% of HP's GHG emissions.⁶

B

Renewable Energy & Climate Change (continued)

B

PERFORMANCE. HP has made commendable progress in reducing its own energy footprint through a combination of energy efficiency and deployment of renewable energy. Both HP's own absolute GHG emissions and those of its supply chain decreased slightly in 2016 (a 21% reduction in emissions for its supply chain on an intensity basis.)⁷ HP engages 95% of suppliers by spend on reducing environmental impact, and 93% have GHG reduction targets. Additionally, 47% of suppliers report to using renewable energy, though details are missing on total percentage or gross amount. In 2016, renewable electricity purchased and generated on-site accounted for 105 million kWh of electricity globally, 14% of total consumption and making progress toward the goal of 40% by 2020.

B

ADVOCACY. While HP is making commendable progress in reducing its energy footprint, it has not kept pace with other US IT leaders in supporting climate and renewable energy policies, and has even fallen off from its efforts in previous years. While HP Inc spoke out publicly after President Trump announced his intention to withdraw the US from the Paris Climate Agreement Accord,⁸ it did not weigh in as strongly⁹ in advance of the decision as many other IT companies did,¹⁰ including HP's sister company HP Enterprise, whose CEO was quite vocal on the importance of the US remaining in.¹¹

B

Sustainable Design & Resource Reduction

B-

TRANSPARENCY. HP [reports](#) typical material composition for its notebooks, desktops, and tablets. Additionally HP reports details of its take-back efforts, including the amount of devices repaired, refurbished and recycled. HP reports overall material use, but not the portion that is recycled (2016 CSR report, pg 43). In contrast to HP's detailed reporting on recycled content in printers and toners, HP only reports on its desktop products' use of PCR, without much specificity (pg 47). Finally, in addition to disclosing its smelter list, HP reports compliance level in avoiding smelters that may fund armed conflict for 3TGs.

B

COMMITMENT. HP has set vague priorities to use less material, increase recycled and recyclable content, use materials with lower environmental impact, increase product durability, repairability, and upgradability, and support repair; however, none of these efforts include a specific goal or timeline (pg 41). In terms of product take-back, HP does have a goal to recycle 1.2 million tonnes of hardware and supplies by 2025, from the starting date of 2016 (pg 65).

C

PERFORMANCE: CIRCULAR PRODUCTION. HP has not assessed priority materials for closed-loop sourcing. The company reports to be using some open-loop PCR plastic for new commercial desktop products (pg 47). HP does not report that it is sourcing any other secondary materials beyond plastic. HP's responsible sourcing due diligence program extends beyond 3TG to include cobalt (pg 88). HP offers [take-back services](#) beyond legal requirements and HP has a no-export policy to prevent the shipment of e-waste from developed to developing countries (pg 123). Finally, HP's products typically score 7 or higher on iFixit repairability assessments, which means disassembly for recycling is an easier process.

B

PERFORMANCE: PRODUCT LIFE EXTENSION. While HP's performance in closing the materials loop leaves room for improvement, HP's product design and other efforts to keep existing gadgets in use longer are more laudable. HP seems unique in offering [tablets](#) whose memory can be easily upgraded, and HP's recently assessed laptops and tablets have easily replaceable batteries. HP offers repair manuals for most products and sells [spare parts](#). The company also sells refurbished products in mature markets (pg 66).

A

Sustainable Design & Resource Reduction (continued)

B-

ADVOCACY. HP would have a D for its membership in ITI which has lobbied against fair repair legislations, as other ITI members in the Guide have received. However, HP’s practice of providing repair manuals publicly along with its statement to “promote regulatory frameworks that support efforts to extend our products’ lives through repair and reuse” saved HP from a lower score (pg 123).

C

Hazardous Chemical Elimination: Products & Supply Chain

C+

TRANSPARENCY. HP publishes a fairly detailed supplier list, which includes address and function for HP’s final assembly suppliers, as well as other details.¹² HP publishes a General Specification for the Environment which includes information about chemicals restricted for use in products and manufacturing, including threshold limits.¹³ HP reports aggregate non-compliance findings of annual supply chain code of conduct audits.

B

COMMITMENT. HP reports that its “current efforts to phase out substances of concern mainly focus on phthalates, brominated flame retardants (BFRs), and polyvinyl chloride (PVC).”¹⁴ In HP’s 2015 CSR report, HP appeared to set a 2020 deadline to phase out remaining uses of BFRs, PVC, antimony and certain phthalates; however, HP also places caveats on this effort, stating “future possible restriction of those materials depends, in part, on the qualification of acceptable alternative materials.”¹⁵

C

PERFORMANCE. HP has taken some steps to phase out chemicals of concern from its line of products, though the work is incomplete. HP reports 75% of personal systems (tablets, notebooks, all-in-ones) sold in 2016 were classified as low halogen (low BFR and PVC), and that all personal systems launched in 2016 have eliminated four phthalates of concern. HP shares its historical timeline for phasing out arsenic, mercury and other materials of concern, as well as materials of concern it continues to use but monitors, such as antimony, beryllium, and BFRs.¹⁶ Beyond auditing, HP reports some initial efforts to address worker health and safety risks in its supply chain, including a pilot project with two of its suppliers to build chemical management capability.¹⁷ The company has also banned the use of several known hazardous chemicals in the manufacturing of its products, including benzene and n-hexane, according to its MRSL.

C

ADVOCACY. HP participates in the Chemical Footprint Project with aims to measure and disclose data on corporate progress toward reduction in chemicals of high concern and introduction of safer chemicals. Additionally, HP is part of Clean Electronics Production Network (CEPN) with a goal to move toward zero exposure of workers to toxic chemicals in the electronics manufacturing process.

B

ENDNOTES

- 1 <https://www.idc.com/getdoc.jsp?containerId=prUS42464617>
- 2 <http://h22235.www2.hp.com/hpinfo/globalcitizenship/environment/productdata/ProductCarbonFootprintnotebooks.html>
- 3 <http://h20195.www2.hp.com/V2/GetPDF.aspx/c03728062.pdf>
- 4 <http://www8.hp.com/us/en/hp-information/environment/footprint.html>
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- 15 <http://www8.hp.com/h20195/v2/GetPDF.aspx/c05154920.pdf>, p. 47.
- 16 <http://h20195.www2.hp.com/V2/GetDocument.aspx?docname=c05117791>
- 17 <http://www8.hp.com/h20195/v2/GetPDF.aspx/c05507473.pdf>, p. 84.



Huawei

Huawei has rapidly expanded its consumer electronic sales outside of its strong base in China, particularly smartphone sales in Europe, capturing as much as 20% in several EU markets this past year,¹ and is poised to overtake Apple for the #2 spot globally.² Despite its emergence as a top global electronic brand, Huawei lags far behind the established global leaders in addressing its environmental responsibility. Huawei has set carbon intensity goals for its own operations, its actual emissions are still increasing nearly 25% per year, and it has not committed to 100% RE or shared a comprehensive strategy to mitigate its carbon footprint across the supply chain. Huawei is not reporting on the carbon footprint of its manufacturing supply chain at all. Given the reach of Huawei's ecosystem and its leadership role in the electronics industry in China and globally, Huawei is well positioned to leverage its entire value chain to reduce emissions and transition to a renewably powered manufacturing base. This will take time, but should begin by improving its transparency, to build confidence among its growing customer base that it is heading in the right direction. As one of the top three biggest smartphone producers in the world, Huawei should bear proportional responsibility to the Earth. Huawei should commit to 100% RE, enhance transparency, and invest more in reducing resource consumption to truly redefine "Made in China."

Renewable Energy & Climate Change

D

TRANSPARENCY. In its 2016 sustainability report, Huawei published its own energy consumption, energy source breakdown, and China region GHG emissions.³ However, the company does not disclose its supplier list and is one of the few global brands that does not publish its scope 3 supply chain GHG emissions. Huawei does publish carbon footprint data for some of its smartphones and tablets.⁴

D

COMMITMENT. Huawei's carbon reduction commitments related to energy are limited to its own operations—to cut GHG emission per unit of sales revenue by 30% by 2020 compared to 2012.⁵ However, its own emissions continue to see significant growth, and does not have a measurable target or commitment to reduce supply chain emissions. The company does not have a public renewable energy target, and has thus far deployed only token amounts of renewable energy.

D

PERFORMANCE. Huawei has installed solar power stations on two campuses, Songshan Lake and Hangzhou, generating just 17 mwh per year, which would represent only 0.01% of Huawei's electricity use in 2016.⁶ Huawei reports large increases in both energy consumption (up 27.3% since 2015) and GHG emissions (up 24.5% since 2015); however, the company claims that both energy consumption and GHG emissions per unit of sales revenue are down 20%, compared to 2012 figures. Huawei currently reports to work with 20 of its suppliers to reduce emissions, with cuts totalling 55,000 tons of CO₂, though due to Huawei's lack of transparency in reporting its supply chain footprint, the significance of these reductions or the overall trajectory of its supply chain emissions is difficult to assess.⁷

D

ADVOCACY. Huawei has not demonstrated any positive or advocacy efforts to advance renewable energy.

—

Sustainable Design & Resource Reduction

D+

TRANSPARENCY. Huawei publishes material composition data for some of its smartphones and tablets.⁸ Huawei does not report on overall use of recycled/secondary inputs, nor does it report the details of its take-back program. Huawei works with other companies through the Conflict Free Sourcing Initiative (CFSI). The company uses the CFSI conflict mineral Questionnaire and the OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas to survey the supply chain. While the company reports sharing these results with its business customers, Huawei is not reporting these results publicly or reporting its list of smelters.⁹

D

COMMITMENT. While Huawei has established a “Design Approach for the Circular Economy,” which includes language to use more secondary and recyclable materials, and to design for easy disassembly and cost-effective recycling, this commitment lacks any measurable benchmarks or timelines.¹⁰

D

PERFORMANCE: CIRCULAR PRODUCTION. Despite a statement in its CSR report to prioritize secondary raw materials, Huawei does not report any information about its use of recycled inputs. Huawei reported incorporating design principles that support ease of disassembly at end of life such as avoiding welds, glue, rivets, and other permanent joints where possible. Huawei has a take-back program in 36 countries that includes 705 recycling stations, and a system for recyclers to categorize products at end of life to recover highest material value, prioritizing repair and then recycling.¹¹

C

PERFORMANCE: PRODUCT LIFE EXTENSION. Huawei does not provide repair manuals or spare parts to the public. Recent smartphone models score average in repairability assessments. To make repairs simpler, Huawei should stay away from proprietary screws (as it used for the P9) and excessive adhesive (which secured the battery in the Mate 8).¹²

D

ADVOCACY. Huawei has supported an extended producer responsibility pilot project created by the Chinese government.¹³

B

Hazardous Chemical Elimination: Products & Supply Chain

D

TRANSPARENCY. Huawei does not publish a supplier list or a restricted substances list for products or manufacturing facilities. Its 2016 sustainability report indicates it restricts the use of 45 chemicals, though it does not name them or disclose levels of acceptable use.

D

COMMITMENT. While Huawei has not made any public commitments to eliminate specific chemicals of concern, it does report it has restricted the use of brominated flame retardants, chlorinated flame retardants, PVC, phthalates, antimony trioxide, and beryllium and beryllium compounds in consumer products starting in 2016, though the levels of acceptable/restricted use are not clear.¹⁴ To improve Huawei must set a public timeline to eliminate these chemicals, and also set targets for processed chemicals of concern.

D

PERFORMANCE. Huawei reports to comply with regulations such as RoHS and REACH, and that it has voluntarily restricted the use of six substances of concern in new mobile phones, tablets, and wearables, which include brominated flame retardants, chlorinated flame retardants, PVC, phthalates, antimony trioxide, and beryllium and beryllium compounds. No detail is provided about the thresholds of restriction. Huawei does not report any progress on restricting processed chemicals among its manufacturers.

D

ADVOCACY. In 2016, Huawei participated in formulating China’s green supply chain management guidelines, as well as the green supply chain management and evaluation requirements of China’s Ministry of Industry and Information Technology (MIIT). Huawei also participated in developing industry guidance on supply chain CSR management.¹⁵

B

ENDNOTES

- 1 <http://www.scmp.com/business/article/2018008/smartphone-makers-zte-huawei-turn-europe-growth>
- 2 <https://www.idc.com/getdoc.jsp?containerId=prUS42935817>
- 3 <http://www.huawei.com/us/sustainability/sustainability-report>, Huawei 2016 Sustainability Report, p. 44.
- 4 <http://consumer.huawei.com/en/support/product-environmental-information/>
- 5 <http://www.huawei.com/us/sustainability/sustainability-report>, Huawei 2016 Sustainability Report, p. 44.
- 6 <http://www.huawei.com/us/sustainability/sustainability-report>, Huawei 2016 Sustainability Report, p. 42-44.
- 7 <http://www.huawei.com/us/sustainability/sustainability-report>, Huawei 2016 Sustainability Report, p. 50.
- 8 <http://consumer.huawei.com/en/support/product-environmental-information/>
- 9 <http://www.huawei.com/us/sustainability/sustainability-report>, Huawei 2016 Sustainability Report, p. 51.
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- 11 <http://www.huawei.com/us/sustainability/sustainability-report>, Huawei 2016 Sustainability Report, p. 61.
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- 14 <http://www.huawei.com/us/sustainability/sustainability-report>, Huawei 2016 Sustainability Report, p. 59.
- 15 <http://www.huawei.com/us/sustainability/sustainability-report>, Huawei 2016 Sustainability Report, p. 46.

C-



Lenovo

While Lenovo sells smartphones and tablets, the company is best known for its personal computers, for which it makes up roughly 20% of global market share. While Lenovo has made important progress in reducing its own emissions, its supply chain emissions are rapidly increasing, and already nine times larger than its own emissions. Lenovo should become more transparent by publishing its supplier list and more specifics on how it is working to transition its suppliers to a renewably powered supply chain. As one of the world's leading IT companies, Lenovo has an opportunity to drive significant reductions across its suppliers, and should begin by setting a more ambitious 100% renewable energy goal for its own operations as its peers Apple and HP have already done. On circular production, Lenovo appears ready to move beyond the use of recycled plastics to incorporate more secondary and closed-loop inputs in its products. However, Lenovo has failed to fully deliver on its commitment to eliminate BVC and BFRs from its products, with the exception of the Think product line. Despite a rather thorough list for managing product chemicals and requiring suppliers to report full materials disclosure for products and parts, Lenovo has not demonstrated the same effort in monitoring manufacturing chemicals.

Renewable Energy & Climate Change

C

TRANSPARENCY. Lenovo provides a detailed breakdown of its scope 1, 2 and 3 GHG footprint, including supply chain emission data, and the use of renewable energy for its own operation on its official website.¹ Lenovo discloses its green power procurement mechanisms, detailing on-site solar installation and different types of RECs purchased. In terms of product LCA, Lenovo reported detailed GHG footprint for its newer tablets and laptops.² However, Lenovo has yet to publish a list of suppliers or provide details on the distribution of emissions across its supply chain.

C

COMMITMENT. Lenovo has made a commitment to cut absolute GHG emission in its own operation by 40% by 2020, compared to 2010. The company recent commitment to add 30 MW of renewable energy 2021 is a start for its own operations, but far from ambitious. Lenovo needs to apply its experience in reducing its own emissions to help its suppliers reduce Lenovo's rapidly growing emissions from its product supply chain, which is already nine times as large as its own Scope 1 and 2 emissions, and currently growing at 25% annually. While Lenovo has set a target aiming to have at least 75% of direct suppliers to have climate change reduction goals (pg 31-32),³ much stronger ambition is needed to begin to curb this growth and transition its suppliers to renewable sources of energy.⁴

C

Renewable Energy & Climate Change (continued)

C

PERFORMANCE. Lenovo has shown a clearer plan and overall strategy to cut its own emissions compared to the rest of the Chinese brands, but still lags behind front-runners like Apple as well as peers like Dell and HP. Lenovo has reported a 32% reduction in its scope 1 and 2 emissions (market-based), compared to 2009, in part through 130+ energy efficiency initiatives worldwide, but also from the purchase of unbundled RECs and carbon offsets, which do little to add additional renewable energy to the grid. Lenovo's supply chain (purchased goods and services) GHG footprint continues to see dramatic growth, increasing by nearly 25% just from 2015 to 2016.⁵

C

ADVOCACY. Lenovo has demonstrated leadership in climate positive advocacy when it signed the American Business Act on Climate Pledge for Paris Agreement. It's time for Lenovo to speak louder with real action in greening its manufacturing and supply chain with more renewable energy.

C

Sustainable Design & Resource Reduction

C

TRANSPARENCY. Lenovo discloses material composition data for some products, though not for mobile phones.⁶ Lenovo has published detailed information about end-of-life management for products annually since 2012, including amount of products reused, recycled, landfilled and incinerated, by weight and by region (pg 24). Lenovo also reports its use of recycled plastic (pg 25). Lenovo also publishes its smelter list for conflict minerals⁷ and its due diligence efforts (pg 63).

B

COMMITMENT. Lenovo has no public goals to close the production loop or specific targets for increased use of secondary materials across its product line. Lenovo has set a vague closed-loop commitment for its Moto line, but there is no timeline.⁸ Lenovo also stated it is investigating opportunities for closed-loop plastics, though gave no specifics about which products this would be used in.

D

PERFORMANCE: CIRCULAR PRODUCTION. Lenovo shows progress in amount of products reused and recycled through its take-back channels over time. Lenovo is one of the few companies to report overall use of recycled plastic over time, which we see is slowly declining from 2012 to 2016 unfortunately. Lenovo offers take-back programs beyond only those regions where it is legally required; however, the company has not met its own target to offer take-back in all markets in which Lenovo sells product. Lenovo reports to be using some closed-loop methods for sourcing plastic for reuse in the manufacture of new Lenovo and non-Lenovo products.⁹

C

PERFORMANCE: PRODUCT LIFE EXTENSION. Lenovo shares repair manuals online for some but not all products,¹⁰ as well as some video tutorials on repair.¹¹ Many Lenovo products have spare parts available on Lenovo's website.¹² Recent smartphones from Lenovo score average in iFixit repairability assessments.¹³ Lenovo sells refurbished products in mature markets.¹⁴

C

ADVOCACY. Like Huawei, Lenovo has also supported the extended producer responsibility pilot project created by China's Ministry of Industry and Information Technology (MIIT).¹⁵

B

Hazardous Chemical Elimination: Products & Supply Chain

D

TRANSPARENCY. Lenovo does not disclose its supplier list. Lenovo publishes a fairly thorough product RSL which includes thresholds;¹⁶ however, this same attention is not paid to managing process chemicals in supplier factories. The only substances restricted for manufacturing purposes are ozone-depleting chemicals, which are not restricted for worker safety. Lenovo should follow the lead of Apple, Dell and Microsoft and publish a thorough MRSL.

D

COMMITMENT. In its CSR report, Lenovo states its support of phasing out BFR and PVC from products; however, it has not established a timeline for doing so.¹⁷ The company makes no explicit commitments to restricting process chemicals.

D

PERFORMANCE. While Lenovo has yet to phase out PVC and BFRs altogether the company does report some progress. Lenovo has completely phased out the use of BFR/PVC in all mechanical plastic parts (such as external covers, housings, etc.) and the company has eliminated most PVC and BFRs from ThinkPad notebooks, excluding accessories. The company is using a system of Full Materials Disclosure (FMD) with suppliers to have better visibility of what is in its products, but this information is not made public. Lenovo incorporates the EICC code of conduct into its contracts with suppliers and Lenovo conducts audits of 95% of suppliers each year; however, the results of these audits are not reported in a way that gives much detail about findings.¹⁸

D

ADVOCACY. No evidence found of positive or negative advocacy.

—

ENDNOTES

- 1 https://www3.lenovo.com/us/en/social_responsibility/climate/performance/
- 2 [https://www3.lenovo.com/us/en/social_responsibility/datasheets_notebooks](https://www3.lenovo.com/us/en/social_responsibility/datasheets/notebooks)
- 3 https://www3.lenovo.com/us/en/social_responsibility/FY2017-Lenovo-Sustainability-Report.pdf, Lenovo Group Ltd, 2016/17 Sustainability Report, p.23-33.
- 4 https://www3.lenovo.com/us/en/social_responsibility/GreenPaper-Addressing-Climate-Change-at-Lenovo.pdf
- 5 https://www3.lenovo.com/us/en/social_responsibility/climate/performance/
- 6 https://www3.lenovo.com/us/en/social_responsibility/datasheets_notebooks
- 7 https://www3.lenovo.com/us/en/social_responsibility-content/Lenovo-Conflict-Minerals-Update.pdf
- 8 <https://www.motorola.com/us/about/corporate-responsibility-operations>
- 9 http://www3.lenovo.com/us/en/social_responsibility/product_recycling_program/
- 10 <https://support.lenovo.com/us/en/>
- 11 www.lenovoservicetraining.com
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- 16 <http://www3.lenovo.com/us/en/pdf/41A7731.pdf>
- 17 http://www3.lenovo.com/us/en/social_responsibility/FY2017-Lenovo-Sustainability-Report.pdf, p. 107.
- 18 http://www3.lenovo.com/us/en/social_responsibility/FY2017-Lenovo-Sustainability-Report.pdf, p. 60.

D+



LG Electronics produces a wide range of electronic devices, which include personal electronic devices such as PCs, laptops, and smartphones, as well as home appliances such as TVs and refrigerators. While often operating in the shadow of Korean rival Samsung in terms of market share among personal computing devices, LG has recently seen promising growth in several foreign markets. LG has recently shown more innovation in its product design than both Apple and Samsung, producing both partially modular smartphones and thin client laptop computers that are easy to repair. While LG has been successful in stabilizing its GHG emissions for its own operations, this has apparently been achieved in part by outsourcing more to its suppliers, with its supply chain emissions dramatically increasing. LG needs to expand its climate protection goals to include its supply chain footprint, and give much greater urgency to deploying and securing access to renewable sources of energy across both its own facilities and those of its suppliers.

Renewable Energy & Climate Change

D

TRANSPARENCY. LG publishes a detailed breakout of its Scope 1 & 2 GHG emissions and energy footprint for its own facilities, including total GHG emissions and electricity consumption by country, though only in its submission to CDP. While LG also reports its scope 3 supply chain GHG emissions in its submission to CDP, it excludes these emissions from its most recent Sustainability Report, even though supply chain emissions were nearly three times LG's own scope 1 & 2 emissions in 2016. LG breaks out its renewable energy purchases, but does not provide adequate detail on what mechanism it used to secure this supply outside of Korea, particularly in the US. LG does not publish its suppliers list or indicate how its supply chain footprint is allocated across its major suppliers. LG publishes product level carbon footprint assessments for a limited number of product lines.¹

D

COMMITMENT. LG has established an absolute GHG reduction goal of approximately 10% of its 2008 emissions, approximately 150,000tonnes CO₂e, to be achieved by 2020.² Given the selection of a very high emissions base year prior to the economic downturn, LG appears to be well positioned to hit this target. LG does not currently have a measurable GHG or energy reduction goal that applies to its product supply chain emissions, which appear to have risen significantly in the past year.³ LG has also set an intensity based GHG reduction target of 40%, (tied to emissions per unit of revenue) based on 2009 levels. Given the low amount of renewable energy powering LGs operations, and its rapidly expanding supply chain footprint, LG would be well served to establish aggressive renewable energy targets both for its own operations as well as it supply chain, and should include its supply chain in any future GHG goals.

D

Renewable Energy & Climate Change (continued)

D

PERFORMANCE. While LG GHG emissions for its own operations have remained relatively flat the past two years, its supply chain emissions have dramatically increased, jumping 75% in one year.⁴ While LG proudly touts its progress toward achieving its absolute target of 150,000 tonnes from its 2008 base year, its supply chain emissions increased by nearly that amount just in one year, and were nearly triple LG own combined Scope 1 & 2 emissions in 2015. LG has finally begun to deploy renewable energy in South Korea and elsewhere linked to its own operations, but given the rapid growth of its supply chain footprint, must be rapidly expanded both in ambition and scope to include driving renewable energy into its supply chain, as Apple has begun to do.

D

ADVOCACY. No evidence found of positive or negative advocacy.

—

Sustainable Design & Resource Reduction

C-

TRANSPARENCY. LG publishes data on its take-back efforts, though data is far more comprehensive for efforts in US than in Korea and some other countries. LG does not publish info for Africa, Middle East, and large parts of Asia, including China.⁵ While LG reports that the company requires suppliers to provide information on materials used for parts through LG's Hazardous Substance Management System, LG does not make this information public. LG does not publish material footprint data for its products. LG does report on its overall use of recycled plastic in smartphones and other electronics and home appliances in 2016 (5,302 tons), which is down from past years. (LG Electronics used 5,617 tons of PCR plastics in 2013, 7,885 tons in 2014, and 6,730 tons in 2015.)⁶ To improve, LG should publish more information on overall material use, as well as use of recycled materials beyond plastic. Additionally, while LG reports on overall efforts to avoid conflict minerals (83% CFSP compliant, page 81 of 2017 CSR report), LG should publicly disclose its smelters.

C

COMMITMENT. LG has a strategy for greener products which includes goals related to resource reduction, including the use of more recycled materials, and also a goal to increase recyclability, including design for easy disassembly.⁷ To improve, LG must establish measurable goals with timelines related to these efforts.

D

PERFORMANCE: CIRCULAR PRODUCTION. LG reports on the use of recycled plastic across its products line, though it's unfortunate to see this decreasing since 2014. On the bright side, LG has a policy against the export of e-waste in line with the Basel Convention and in 2011, LG announced that it would only work with certified e-Stewards recyclers,⁸ which use the highest standards in the recycling industry. LG was the first company to agree to use e-Stewards recyclers exclusively globally and we applaud LG for making this commitment. LG goes slightly beyond legal requirements to offer take-back in 50 countries as of 2016.

C

PERFORMANCE: PRODUCT LIFE EXTENSION. LG products score satisfactorily in iFixit repairability assessments (Average scores of the G4, G5, G6, smartphones the Gpad 7 tablet, and Gram laptop is 7.5/10), due in large part to the high-scoring LG G4 and G5 phones with their easily replaceable batteries. Unfortunately, LG appears to have moved away from this design feature with its latest flagship phone, the LG G6, which is sealed with tough adhesive. LG does not report on number of refurbished products sold and does not promote the sale of refurbished products in developed markets.

C

ADVOCACY. No evidence found of positive or negative advocacy.

—

Hazardous Chemical Elimination: Products & Supply Chain

D+

TRANSPARENCY. LG publishes its PRSL which includes substances monitored in products and threshold limits; however, many chemicals listed are in fact those already banned by legislation.⁹ LG does not publish an MRSL, yet it reports using an internal system for managing workplace chemicals. To improve in transparency, LG should make both its MRSL and supplier list public.

D

COMMITMENT. LG reports that its work to phase out PVC and BFRs across its product lines is still ongoing, and the company no longer has a deadline, despite missing earlier deadlines it set in 2010 and 2012. The company claims to prohibit the use of one substance—methanol—in supplier facilities to protect worker health and safety. However, it is unclear whether they are implementing such policies limited to first-tier suppliers or it applies to entire supply chain.

D

PERFORMANCE. LG reports some progress on removing PVC and BFRs from mobile phones since 2010, followed by phthalates and beryllium since 2011 and antimony trioxide since 2012.¹⁰ LG should continue to move forward with its efforts on product detox across all products (including laptops) and accessories. In terms of worker health and safety, LG learned in 2016 that workers in its supply chain went blind after using methanol for aluminum cutting purposes. LG investigated the use of methanol at all supplier facilities, prohibited the use in production, and is providing trainings to 1st tier suppliers to ban the use of methanol.¹¹ To protect workers further, LG should monitor and restrict the use of other known manufacturing hazards, such as benzene, n-hexane, toluene, as other leading companies have done and publish more information about its screening method for identifying truly safer alternatives.

C

ADVOCACY. Unlike Samsung, LG Display Co., Ltd.¹² announced support for comprehensive compensation for workers with occupational diseases, including supply chain workers.

B

ENDNOTES

1 <http://www.lg.com/global/sustainability/environment/greener-products/products-application>

2 <http://www.lg.com/global/pdf/Sustainability-Report/2016-2017%20Sustainability-Report.pdf>

3 LG Electronics 2016 CDP submission.

4 LG Electronics 2016 CDP submission.

5 <http://www.lg.com/global/recycling>

6 <http://www.lg.com/global/sustainability/communications/sustainability-reports>, 2017 CSR report, p. 57

7 <http://www.lg.com/global/sustainability/environment/greener-products/green-product-strategy>

8 <http://www.prnewswire.com/news-releases/lg-electronics-commits-to-using-the-most-responsible-e-waste-solution-worldwide-126244008.html>

9 <http://www.lg.com/global/sustainability/environment/management-of-hazardous-substances>

10 LG 2016-2017 CSR report, p. 55.

11 LG 2016-2017 CSR report, p. 67.

12 <http://www.hani.co.kr/arti/economy/marketing/796502.html>

C-



Microsoft

With the introduction of its line of Surface laptops and tablets, Microsoft has significantly expanded since we last evaluated its performance as a hardware company in the Guide (Version 16, 2010), when it had consistently ranked near the bottom. However, in our evaluation of Microsoft's data centers' operations in Greenpeace's Clicking Clean report,¹ we have recently noted a stronger commitment to environmental performance since Brad Smith was named president and put in charge of environmental sustainability. Unfortunately, this stronger commitment to the environment has not translated over to Microsoft's hardware design and supply chain management to date, particularly in the product design of its Surface laptops and tablets. These products currently suffer from both poor reliability and extreme difficulty to repair, a combination that is bad for the consumer as well as the environment. Microsoft has made efforts to address worker health in its supply chain, including preventing child labor associated with mineral extraction. Given its rapidly rising supply GHG emissions, Microsoft needs to work collaboratively with its supplier to quickly export the success it has made in securing renewable energy for its data centers to address its rapidly growing supply chain emissions footprint is East Asia, as we now see being executed by Apple.

Renewable Energy & Climate Change

D+

TRANSPARENCY. Microsoft's reporting of its own energy footprint indicates gradual but important improvements in the past two years, moving beyond its claims of being "carbon neutral" to setting interim targets and reporting its progress toward becoming 100% renewably powered. However, Microsoft currently only publishes its top 100 production suppliers by spend, without any detail on location or their role in the supply chain.² While Microsoft can claim some significant improvement in its supply chain reporting, with more of its suppliers reporting their emissions to CDP, Microsoft's own reporting of its aggregate supply chain emissions have become more opaque, stating its reported 20% increase in emissions from its product supply chain may be over- or underreported by as much as 50%.³

C

COMMITMENT. Microsoft's 100% renewable commitment for its own operations has been supplemented by an interim goal of 50% renewable by 2018. However, Microsoft has not expanded its 100% renewable commitment to its supply chain as Apple has done, nor has it set any reduction targets for rapidly growing supply chain emissions, which shot up by 20% in 2016 alone.⁴ To begin to get control of this growth, Microsoft should also set targets for the percentage of its suppliers who have themselves established greenhouse gas reduction goals.

D

PERFORMANCE. Microsoft has begun to act with greater urgency in tackling the energy footprint of its rapidly growing cloud infrastructure, working to deploy large-scale renewable energy projects to power its data centers. However, similar urgency and commitment is currently lacking in managing its rapidly expanding supply chain emissions, which saw a 20% increase in greenhouse gasses in 2016.

D

Renewable Energy & Climate Change (continued)

D+

ADVOCACY. Microsoft has recently stepped up its advocacy in the United States, joining Apple, Google, and Amazon in filing an amicus brief in support of federal legislation to restrict carbon emissions in the electricity sector. Microsoft also joined with a number of major corporations to urge the Trump administration to not seek to withdraw the United States from the Paris Climate Agreement.⁵

A

Sustainable Design & Resource Reduction

D+

TRANSPARENCY. Microsoft shares material composition data for several recent products, however these reports do not contain information about recycled content in products beyond packaging.⁶ The company reports limited information on its consumer electronics recycling efforts.⁷ However, Microsoft discloses a detailed list of its smelters, annual conflict-free compliance levels, as well as its due diligence efforts to avoid sourcing conflict minerals.⁸

C

COMMITMENT. As far as committing to reduce overall resource consumption, Microsoft has issued vague principles for product design which include “closing the lifecycle loop through effective end-of-life practices” and “processes for the use of recycled metals, which aim to increase the ratio of recycled content significantly.” These statements lack specifics, measurable outcomes, and a timeline.

D

PERFORMANCE: CIRCULAR PRODUCTION. Microsoft has not assessed priority materials for closed-loop sourcing. While the company reports using recycled metals and plastics in its devices, no further details are reported including which materials or how much. Microsoft’s responsible sourcing due diligence program extends beyond 3TG to include cobalt.⁹ While tricky to navigate online, Microsoft offers take-back services beyond legal requirements¹⁰ and requires its recycling partners to follow the Basel Treaty regarding the export of e-waste.¹¹ Unfortunately, Microsoft’s products score very low on iFixit repairability assessments which means disassembly for recycling is time-consuming and expensive.

C

PERFORMANCE: PRODUCT LIFE EXTENSION. Despite Microsoft’s “Design for Green”¹² approach, which purports to factor in resource efficiency, Microsoft’s products are some of the lowest scorers in repairability assessments. In June 2017, iFixit gave the Microsoft Surface laptop an unprecedented zero out of 10, for its difficulty to remove the battery, non-upgradable storage, and the fact the device could not be opened without “inflicting a lot of damage.”¹³ Other Surface laptops and tablets tend to be low scorers as well, particularly for using excessive amounts of adhesive. These design choices make repairs time-consuming and upgrades impossible, both of which shorten product lifespans. A particular problem for Surface devices, which Consumer Reports recently found to break at higher rates than other brands they assess.¹⁴ Additionally, Microsoft does not provide repair manuals or spare parts, further preventing repair. Microsoft does offer refurbished products in mature markets, saving itself from a total zero in this criteria.¹⁵

D

ADVOCACY. Microsoft’s membership to ITI, which lobbies against Right to Repair legislation in the US, gives Microsoft a poor advocacy grade for reducing resource consumption.

D

Hazardous Chemical Elimination: Products & Supply Chain

C

<p>TRANSPARENCY. While Microsoft does publish a list of its top 100 suppliers, only the supplier name is provided. Microsoft's PRSL, however, is far more comprehensive.¹⁶ Microsoft also publishes its MRSL,¹⁷ one of only three companies assessed to do so. (Apple and Dell are the others). Microsoft reports out on overall findings of its EICC audits.¹⁸</p>	<p>B</p>
<p>COMMITMENT. Microsoft has yet to deliver on its earlier commitment to phase out PVC and BFRs altogether, and does not have a timeline at this point for phasing PVC, BFRs, beryllium, antimony trioxide, and phthalates out of all products.</p>	<p>D</p>
<p>PERFORMANCE. Despite no overarching commitment to phase out PVC and BFRs, Microsoft has made some progress. For example, BFR use is restricted, with exemptions (pigments of color filters in displays and cameras). We can see from Microsoft's MRSL that it has banned certain process chemicals of concern, such as benzene and n-hexane from all manufacturing processes, and has restricted the use of toluene, methanol and VOCs in manufacturing settings. Additionally, Microsoft has expanded worker health and safety due diligence beyond periodic audits and corrective actions. Microsoft has established a Process Chemical Management Program to restrict and phase out of certain chemicals from the manufacturing processes of direct suppliers.</p>	<p>C</p>
<p>ADVOCACY. No evidence found of positive or negative advocacy.</p>	<p>—</p>

ENDNOTES

- 1 www.clickclean.org
- 2 http://download.microsoft.com/download/0/1/4/014D812D-B2E3-43A0-A89A-16E3C7CD46EE/Microsoft_Top_100_Production_Suppliers_2016.pdf
- 3 Microsoft 2016 Supply Chain CCP Submission
- 4 http://download.microsoft.com/download/0/1/4/014D812D-B2E3-43A0-A89A-16E3C7CD46EE/2016_Data_Factsheet_Environmental_Indicators.pdf
- 5 <https://www.c2es.org/international/business-support-paris-agreement>
- 6 <https://www.microsoft.com/en-us/download/details.aspx?id=55974&751be11f-ed8-5a0c-058c-2ee190a24fa6=True>
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Oppo

Oppo is one of the fastest-growing smartphone companies in the world, ranked 4th in terms of global market share at 8% and 2nd in China, where its has a nearly 20% market share. Oppo also has a strong presence in India, and seeks to break into other global markets as well, as evidenced by their high profile sponsorship of the Barcelona football club. Oppo is a subsidiary of BKK electronics, which also owns Chinese rival Vivo, but the two brands are run independently. Oppo is also the owner of the OnePlus brand. While Oppo is quickly emerging as a leader in sales, it is a clear laggard in addressing its environmental responsibility. Like its BKK sister company, Oppo does not publish even basic information regarding its environmental performance or its sustainability efforts. Oppo did not respond to Greenpeace's repeated requests to provide details on its strategy for improving the sustainability of its own operations or the environmental performance of its suppliers.

Renewable Energy & Climate Change

F

TRANSPARENCY. Despite being one of the fastest growing smartphone brands in the world, Oppo does not prioritize informing the public of its sustainability strategy. It does not publish a CSR report, nor does it disclose any emission data to the public. In the age of information, building trust with consumers through transparency is imperative for building brand loyalty.

F

COMMITMENT. Neither Oppo or its parent company BKK have made public a sustainability strategy, or made any public commitment to address its energy and climate footprint.

F

PERFORMANCE. Oppo fails to disclose even basic details on its energy performance, or efforts to reduce greenhouse gas emissions in its own operations or those of its suppliers. Given Oppo's rapid growth in smartphone sales and the apparent absence of strategy to transition to renewable energy, this growth is likely to result in a significant increase in Oppo's greenhouse gas emissions.

F

ADVOCACY. No positive or negative advocacy for renewable energy from Oppo discovered.

-

Sustainable Design & Resource Reduction	F
<p>TRANSPARENCY. Despite the growing popularity of its products, Oppo does not publish any data about the materials used in its phones, the use of recycled materials, or take-back data.</p>	F
<p>COMMITMENT. Neither Oppo or its parent company BKK have made public a sustainability strategy, or made any public commitment to reduce the impact its products have through the use of recycled materials or long lived product design.</p>	F
<p>PERFORMANCE: CIRCULAR PRODUCTION. While Oppo recently announced a partnership in Australia to recycle its phones at end of life,¹ the company will have to offer far more robust take-back programs, especially in Asia, to collect and repurpose the materials in the many millions of Oppo phones expected to be approaching the end of their lifespan.</p>	F
<p>PERFORMANCE: PRODUCT LIFE EXTENSION. Oppo's R9m scored 7 out of 10 on a recent repairability assessment.² While the interior of the phone contained numerous modular parts that could be replaced independently, opening the device was difficult. Oppo does not provide repair manuals or spare parts to the public.</p>	D
<p>ADVOCACY. No evidence found of positive or negative advocacy</p>	-

Hazardous Chemical Elimination: Products & Supply Chain	F
<p>TRANSPARENCY. Oppo does not disclose information about chemical management in its products or supply chain.</p>	F
<p>COMMITMENT. Oppo fails to disclose its chemical management strategy, nor has it publicly committed to eliminate chemicals of concern such as PVC, BFRs and phthalates from its products.</p>	F
<p>PERFORMANCE. Oppo fails to disclose its chemical management strategy, nor make public a supplier code of conduct. Oppo is one of the few companies in the Guide that are not members of EICC, which requires regular auditing of its suppliers against a standard code of conduct.</p>	F
<p>ADVOCACY. No evidence found of positive or negative advocacy</p>	-

ENDNOTES

- 1 <http://www.mobilemuster.com.au/news/articles/2016-10/mobilemuster-announces-oppo-as-new-member-of-national-recycling-program/>
- 2 <https://www.ifixit.com/smartphone-repairability>

D-

SAMSUNG

Samsung

Samsung currently occupies a critical position of influence over whether our devices are designed and built for the planet. Samsung is both the world’s largest manufacturer of smartphones and is also one of the largest manufacturers of memory, displays, and the integrated circuits that serve as the engines for our electronic devices, making the company a critical supplier to many of the other companies in this year’s Guide, including Apple. Unfortunately, in neither Samsung’s product lines nor the operation of its factories did we find much evidence that reducing Samsung’s environmental impact has been made a priority by the company’s leadership. Samsung has not kept pace with the efforts of Apple to reduce its greenhouse gas footprint and transition its factories to renewable sources of energy, and has seen its emissions rapidly climb as a result.

Renewable Energy & Climate Change

D

TRANSPARENCY. While Samsung continues to report its own greenhouse gas emissions and energy footprint at a fairly standard level of detail, contrary to the trend across other major brands, its reporting of GHG emissions from its supply chain significantly degraded in its most recent sustainability report. Samsung’s supply chain emissions went from nearly double its own Scope 2 emissions in 2014 to “NA” (Not Applicable) in 2016.¹ Samsung still fails to publish its list of suppliers. Samsung does publish basic product level carbon footprint assessment of a selection of its product types,² but does not publish them as regularly as Apple, HP, and Huawei have done.

D

COMMITMENT. Samsung has established an intensity-based GHG target of reducing just its own emissions by 70% by 2020, measured as carbon per unit of revenue (2008 baseline). It is unclear whether this will result in absolute emission reduction terms if achieved, with Samsung estimating an absolute reduction of only 3% total over a twelve-year window.³ At present, Samsung Scope 1 & 2 emissions are rapidly climbing at the rate of 10 to 15% per year on an absolute basis, and still accelerating.⁴ Samsung has promised to announce a mid-term reduction target for the 2030 timeframe in the coming year. Samsung must move away from the use of renewable energy certificates (RECs) and set a clear renewable energy goal for its own operations as well as its supply chain to take action on climate change.

D

PERFORMANCE. While Samsung is able to highlight a range of efforts to reduce its GHG emissions, they have been insufficient to curb Samsung’s rapidly rising emissions. On both an intensity basis as utilized by Samsung to track toward its 2020 goal as well as an absolute emissions measurement, Samsung’s own scope emissions are rapidly increasing. Using Samsung-reported Scope 1 & 2 emissions for 2016, absolute emissions have increased 24% just since 2014, and were estimated to increase another 15% by the end of 2017. While Samsung reports a near doubling of renewable electricity consumption in 2016 to 182 GWh, this jump comes from an extremely low basis, and would account for only 1% of its total electricity use.⁵

D

ADVOCACY. No evidence found of positive or negative advocacy

—

Sustainable Design & Resource Reduction

D

TRANSPARENCY. Samsung tracks and reports its use of recycled plastics since 2014 for monitors, printers, refrigerators, and ear-phone cases; however, this plastic does not seem to be used in consumer electronics.⁶ The company publishes material composition data for some products; however, it is not possible to see from this data how much secondary materials are used.⁷ Samsung does report details on its take-back efforts from 2009. Samsung reports to be working with the Conflict Free Smelter Initiative, but unlike other major companies, Samsung does not publish its list of smelters for 3TG.⁸

C

COMMITMENT. Samsung lacks specific goals related to reduction of resource consumption either via extending product lifespans or using increasing amounts of recycled inputs. The company does have one goal relating to take-back: to collect 3.8 million tons of equipment by 2020, starting in 2009; however, there are no details to specify these electronics be used in circular production schemes.⁹

F

PERFORMANCE: CIRCULAR PRODUCTION. In 2016, Samsung used 30,849 tons of recycled plastic across its product lines (including home appliances), or roughly 5% of total plastic used. Unfortunately, this number is down from last year's total: 34,322, or 6.3%.¹⁰ Samsung offers take-back services in 60 countries, beyond where legally required, and Samsung has a policy for its recycling partners to not export electronic waste to developing countries.¹¹ Despite Samsung's promotion of the circular economy in its sustainability report, the company's design decisions, including the use of excessive adhesive in smartphones, make the process of supporting the circular economy, through repair and recycling, more challenging.¹² This was especially clear after Samsung's recall of the overheating Galaxy Note7 devices. Had the batteries in those handsets been easy to access and replace, Samsung could have potentially avoided the recall of millions of devices worldwide and distributed replacement batteries. In response to Greenpeace pressure, Samsung refurbished and sold 400,000, or roughly 10%, of recalled Note7 devices in South Korea. The company has stated it will recycle the other metals in the devices.¹³

D

PERFORMANCE: PRODUCT LIFE EXTENSION. Repairability of recent smartphones (the S8, S7, and S7 edge) and tablets (the Tab3) score unsatisfactorily (3s and 4s out of 10). The Notebook Series 9 15-inch laptop is a welcome exception, scoring 9/10, and demonstrating that Samsung can design for repairability when it comes to laptops. The company should apply similar principles to smartphones and tablets. Samsung's recent phones tend to rely on a great deal of adhesive, making repairs difficult and time-consuming. On the plus side, the S8, S7, and S7 edge all have an SD card slot, meaning device memory can be increased without buying a whole new device. Samsung does not make spare parts or repair manuals publicly available, but the company does sell refurbished products in some markets including the US.¹⁴

D

ADVOCACY. Samsung's membership to ITI, which lobbies against Right to Repair legislation in the US, gives Samsung a poor advocacy grade for this impact area.

D

Hazardous Chemical Elimination: Products & Supply Chain

D-

TRANSPARENCY. Samsung publishes its PRSL which includes threshold details,¹⁵ but the company does not publish its MRSL. Samsung publishes the aggregate findings of its supply chain code of conduct audits annually,¹⁶ however, the company does not provide a list of its suppliers.

D

Hazardous Chemical Elimination... (continued)

D-

COMMITMENT. Despite past failures to meet its BFR phaseout timelines, Samsung has now eliminated the use of BFRs in new mobile phones (and accessories) and notebooks (and power cord and adapters), since January 2012. Samsung has eliminated PVC from the same products; however, power cords and adapters for notebooks are excluded.¹⁷ Samsung should publicly commit to phase out PVC from all parts and product lines. Samsung reports it has a target to ban the use of benzene and n-hexane in the manufacturing process of suppliers, though it is unclear if these have also been banned in Samsung's own plants, and there is no timeline.¹⁸

D

PERFORMANCE. Samsung reports progress on its efforts to eliminate the following substances from certain product lines: antimony and some phthalates phased out of mobiles (including accessories) and notebooks (excluding chargers and adapters) since 2013, beryllium compounds phased out of all products since 2013.¹⁹ Following the incident in which six workers incurred vision damage from working with methanol as a cutting solution over 12-hour shifts,²⁰ Samsung investigated the use of methanol at all supplier facilities. Samsung reports to have developed eco-friendly coolants as a substitute for ethanol in order to create a safe workplace. However, it is unclear whether Samsung officially prohibited the use of methanol throughout suppliers.²¹

D

ADVOCACY. Unlike SK Hynix²² or LG Display²³, who publicly announced support for comprehensive compensation for workers with occupational diseases following the recommendation of an external committee, Samsung moved forward with a compensation plan that did not follow the committee's recommendation and did not cover certain reproductive system diseases, reduced the latency period of certain cancers, excluded victims who retired before January 1, 1996, and restricted supply chain workers' compensation only to resident partner company whom have been regularly assigned to the specific tasks by Samsung.²⁴ Samsung continues to claim "trade secrets" regarding the chemicals handled in Samsung semiconductor and LCD factories by numerous workers who later contracted occupational illnesses. (There are now 22 workers who've officially received occupational diagnosis, 11 of whom are deceased.²⁵)

D-

ENDNOTES

- 1 Samsung 2017 Sustainability Report, http://www.samsung.com/us/aboutsamsung/sustainability/sustainabilityreports/download/2017/Samsung_Electronics_Sustainability_Report_2017.pdf, p. 38.
- 2 <http://images.samsung.com/is/content/samsung/p5/sg/aboutsamsung/2017/aboutsamsung-sg-life-cycle-assessment-en.pdf>, http://www.samsung.com/us/aboutsamsung/sustainability/environment/eco_products/download/2017%20Life-Cycle-Assessment-for-Mobile-Phones.pdf
- 3 Samsung 2016 CDP Submission
- 4 Samsung 2017 Sustainability Report, p. 70.
- 5 Samsung 2017 Sustainability Report, p. 38.
- 6 Samsung 2017 Sustainability Report, p. 37.
- 7 <http://images.samsung.com/is/content/samsung/p5/sg/aboutsamsung/2017/aboutsamsung-sg-life-cycle-assessment-en.pdf>
- 8 Samsung 2017 Sustainability Report, p. 83.
- 9 Samsung 2017 Sustainability Report, p. 64.
- 10 Samsung 2017 Sustainability Report, p. 37.
- 11 http://www.samsung.com/us/aboutsamsung/sustainability/environment/responsible-recycling/assets/pdfs/samsung_policy.pdf
- 12 Samsung 2017 Sustainability Report, p. 47.
- 13 <https://news.samsung.com/kr/%EC%82%BC%EC%84%B1%EC%A0%84%EC%9E%90-%EA%B0%A4%EB%9F%AD%EC%8B%9C-%EB%85%B8%ED%8A%B8-%EC%B9%9C%ED%99%98%EA%B2%BD-%EC%B2%98%EB%A6%AC-%EC%9C%84%ED%95%9C-%EC%9E%90%EC%9B%90-%EC%9E%AC%EC%83%9D%C2%B7?CID=AFL-hq-mul-0813-11000279>
- 14 <https://www.samsung.com/us/explore/certified-pre-owned-phones/>
- 15 [http://www.samsung.com/common/aboutsamsung/download/companyreports/SEC%20Standard\(0QA-2049\)%20Rev18_EN.pdf](http://www.samsung.com/common/aboutsamsung/download/companyreports/SEC%20Standard(0QA-2049)%20Rev18_EN.pdf)
- 16 Samsung 2017 Sustainability Report, p. 81.
- 17 [http://www.samsung.com/common/aboutsamsung/download/companyreports/SEC%20Standard\(0QA-2049\)%20Rev18_EN.pdf](http://www.samsung.com/common/aboutsamsung/download/companyreports/SEC%20Standard(0QA-2049)%20Rev18_EN.pdf)
- 18 Samsung 2017 Sustainability Report, p. 27.
- 19 [http://www.samsung.com/common/aboutsamsung/download/companyreports/SEC%20Standard\(0QA-2049\)%20Rev18_EN.pdf](http://www.samsung.com/common/aboutsamsung/download/companyreports/SEC%20Standard(0QA-2049)%20Rev18_EN.pdf)
- 20 http://english.hani.co.kr/arti/english_edition/e_national/733344.html
- 21 "Follow-up study on the acute methanol poisoning victims in cell phone manufacturing subcontractors with recommendations for improvement." The original report was prepared and published in December 2016 by Solidarity for Workers' Health, a NGO that advocates for workers' health and safety and the prevention of occupational injuries and diseases commissioned by Korean Industrial Hygiene Association. (<http://laborhealth.or.kr/43375>)
- 22 http://english.hani.co.kr/arti/english_edition/e_national/719202.html
- 23 <http://www.hani.co.kr/arti/economy/marketing/796502.html>
- 24 <https://news.samsung.com/kr/?p=247659>, <http://cafe.daum.net/samsunglabor/MHzN/373>
- 25 Among 263 Samsung Electronics occupational disease victims, 95 are deceased. (2017.10.05.) <http://cafe.daum.net/samsunglabor/MHzN/422>

D+

SONY Sony

Sony had been an early leader within the sector in addressing the need to eliminate hazardous chemicals from its products, and while Sony continues to demonstrate it has the ability to create solutions to reduce its impact on the planet from its energy use and resource consumption, this year's guide found Sony repeatedly lacking in leadership, ambition, and follow through necessary to turn Sony into a leader in environmental performance. While Sony has made progress in deploying renewable energy in Japan, much greater ambition is needed from its leadership, with its 2020 target will only deliver approximately 5% renewable energy. Despite Sony's thorough reporting of its own operational footprint and the impacts of its devices, Sony also lags behind sector leaders in reporting important details on the environmental performance of its supply chain, which appear to several times larger in terms of their impact on the climate than Sony's own facilities.

Renewable Energy & Climate Change

C-

TRANSPARENCY. Sony provides a very thorough accounting of the company's Scope 1 & 2 GHG emissions, energy use, and other details of its energy related footprint, but remains fairly light on details of its supply chain footprint. Unlike other leading brands, Sony does not make public its suppliers, or details on the distribution of its supply chain emissions, even though Sony's reported Scope 3 product goods and services emissions were nearly four times larger than its combined Scope 1 & 2 emissions in 2016.

C

COMMITMENT. Sony recently adopted a midterm set of 2020 targets in furtherance of Sony's "Road to Zero" 2050 long term plan, including a Scope 1 & 2 GHG reduction target of 5% (from 2015 levels), and a renewable energy target expressed in terms of 300,000 tonnes CO₂e,¹ which will apparently only increase Sony's renewable energy from 3.5% to 4.1%.² Greater ambition is needed if Sony is serious about realizing its goal "zero emissions of greenhouse gases" in 2050. Sony also said it will "request" its main suppliers to measure and reduce their greenhouse gas intensity by 1% per year, and similarly request them to utilize renewable energy.³ While these new targets are positive directionally, they similarly lack adequate ambition, particularly Sony's targets for renewable energy and supply chain emissions. Sony's lack of transparency on which companies are part of their supply chain will also make it difficult to assess whether their request has been responded to.

C

PERFORMANCE. Sony has made some progress in curbing its own emissions in absolute terms through a mixture of energy efficiency and limited deployment of renewable energy. Sony has purchased or deployed renewable energy in Japan as well as in the United States and the EU, although its total renewable energy remains less than 6% in 2016. Sony must set a stronger example in its own operations, as the company needs to work with its suppliers to increase their incentive to drive greater reductions and adoption of renewable energy, a strategy we are now seeing pay off for Apple.

D

Renewable Energy & Climate Change (continued)

C-

ADVOCACY. Sony signed a joint statement in Japan earlier this year in support of greater access to renewable energy for corporations who want to be powered with 100% renewable energy (joined by 10 corporations, including Apple and Microsoft).⁴

B

Sustainable Design & Resource Reduction

C-

TRANSPARENCY. Sony provides a thorough accounting of its device take back⁵ and recycling efforts,⁶ along with quality case study information on its efforts to develop and utilize halogen-free recycled plastics.⁷ Building on its helpful flow reporting of material flows and resources,⁸ Sony should provide a more detailed accounting of its material flows across its product lines, highlighting where it is prioritizing interventions to increase the amount of recycled material and decrease the amount of waste. Sony also provides clear reporting on managing resourcing of conflict minerals.⁹

B

COMMITMENT. Sony has established a target to reduce amount of virgin oil-based plastics per product unit by 10% (2013 base year) as part its “2020 Green Management Targets.”¹⁰ While this is a positive step, it is similar to its renewable energy goal: right direction, but but lacking in ambition. Sony should be working to expand the amount of recycled material going into its products, setting priorities for extending its use of recycled beyond plastics to other high impact materials, as Fairphone and Apple have begun to do.

D

PERFORMANCE: CIRCULAR PRODUCTION. Sony has shown innovation in the development of its SORPLAS plastic formulation, allowing much higher percentage of recycled plastics material to be used, but needs to look beyond plastics to include secondary materials for other high impact materials.¹¹ Sony has an extensive take-back system across all of its major markets.¹² As Apple, Dell, and Fairphone have done, Sony needs to prioritize what additional materials will be part of its roadmap to transition to non-virgin material for its devices beyond plastics.

C

PERFORMANCE: PRODUCT LIFE EXTENSION. Sony’s performance in slowing the rate of resource consumption through its product design and support network has been thus far been underwhelming, with only small areas of progress to point to. Sony does provide for limited upgradeability in its smartphones and tablet by continuing to offer SD card storage, and while it offers refurbished products for sale in the UK,¹³ it does not appear to extend to other mature markets. Sony also fall short in terms of enabling repair and longer life for its devices, as it does not provide repair information or spare parts.

D

ADVOCACY. No evidence found of positive or negative advocacy.

–

Hazardous Chemical Elimination: Products & Supply Chain

D

<p>TRANSPARENCY. Sony publishes a product restricted substances list (PRSL),¹⁴ but the company does not make public which substances, if any, it is monitoring in factory settings, nor does not publish its current list of suppliers. Sony provides only basic information on its assessment of its suppliers for adherence to its code of conduct,¹⁵ and is absent any details of actual or even overall performance in each of the five compliance areas (labor, health and safety, ethics, environment, and management systems).¹⁶</p>	<p>D</p>
<p>COMMITMENT. Sony has yet to deliver on its earlier commitment to phase out PVC and BFRs altogether, and still does not have a timeline at this point for phasing PVC, BFRs, beryllium, antimony trioxide, and phthalates out of all products.</p>	<p>D</p>
<p>PERFORMANCE. Sony has identified a range of products that are free from PVC & BFRs,¹⁷ which include Xperia Smartphones and Tablets. Sony has also eliminated Beryllium from its smartphones.¹⁸ Unlike HP, Microsoft, Apple and other leaders, Sony has not banned the use of known hazardous chemicals such as benzene and n-hexane from use within its supply chain.</p>	<p>D</p>
<p>ADVOCACY. No evidence found of positive or negative advocacy.</p>	<p>—</p>

ENDNOTES

- 1 <https://www.sony.net/SonyInfo/csr/SonyEnvironment/ourvision/GM2020/TargetMatrix.pdf>
- 2 https://www.sony.net/SonyInfo/csr_report/environment/data/response.pdf
- 3 <https://www.sony.net/SonyInfo/csr/SonyEnvironment/ourvision/GM2020/TargetMatrix.pdf>
- 4 http://renewable-ei.org/en/images/pdf/20170422/REI_ProposalforPromotingRenewables_EN_170422_final.pdf
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- 6 https://www.sony.net/SonyInfo/csr_report/issues/CSR2016E_PDF_all_e.pdf, p.360.
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- 11 <https://www.sony.com/electronics/sorplas-recycled-plastic>
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- 16 https://www.sony.net/SonyInfo/csr_report/issues/CSR2016E_PDF_all_e.pdf, p.173.
- 17 https://www.sony.net/SonyInfo/csr_report/environment/products/replace.html#block2
- 18 https://www.sony.net/SonyInfo/csr_report/issues/CSR2016E_PDF_all_e.pdf, p.289.

vivo Vivo

In less than ten years since it launched, Chinese-based Vivo is quickly emerging as one of the top five smartphone brands according to global market share.¹ Its growth is predominantly driven by the Chinese market, but as it is starting to saturate, Vivo is rapidly expanding aggressively in India and other Southeast Asian markets. Vivo, like Oppo, is a subsidiary of BBK Electronics, and like sister company Oppo, is a clear laggard in addressing its environmental responsibility. Vivo does not publish even basic information regarding its environmental performance or its sustainability efforts. Vivo did not respond to Greenpeace's repeated requests to provide details on its strategy for improving the sustainability of its own operations or the environmental performance of its suppliers.

Renewable Energy & Climate Change

F

TRANSPARENCY. Similar to Oppo, Vivo does not prioritize informing the public of its sustainability strategy. It does not publish a CSR report, nor does it disclose any emission data to the public. In the age of information, building trust with consumers through transparency is imperative for cultivating customer loyalty.

F

COMMITMENT. Neither Vivo or its parent company BKK have made public a sustainability strategy, or made any public commitment to address its energy and climate footprint.

F

PERFORMANCE. Vivo fails to disclose even basic details on its energy performance, or efforts to reduce greenhouse gas emissions in its own operations or those of its suppliers. Given Vivo's rapid growth in smartphone sales and the apparent absence of strategy to transition to renewable energy, this growth is likely to result in a significant increase in Vivo's greenhouse gas emissions.

F

ADVOCACY. No evidence found of positive or negative advocacy

-

Sustainable Design & Resource Reduction	F
<p>TRANSPARENCY. Despite the growing popularity of its products, Vivo is not publishing any data about the materials used in its phones, the use of recycled materials, or take-back data.</p>	F
<p>COMMITMENT. Neither Vivo or its parent company BKK have made public a sustainability strategy, or made any public commitment to reduce the impact its products have through the use of recycled materials or long lived product design.</p>	F
<p>PERFORMANCE: CIRCULAR PRODUCTION. Vivo does not provide and public information on its use of recycled content in its products, or provide any meaningful detail on its product take-back or recycling efforts.</p>	F
<p>PERFORMANCE: PRODUCT LIFE EXTENSION. Two recently assessed Vivo phones scored average in repairability assessments.² While the interior of the phone contained numerous modular parts that could be replaced independently, opening the device was difficult. Vivo does not provide repair manuals or spare parts to the public.</p>	D
<p>ADVOCACY. No evidence found of positive or negative advocacy</p>	-

Hazardous Chemical Elimination: Products & Supply Chain	F
<p>TRANSPARENCY. Vivo does not disclose information about chemical management in its products or supply chain.</p>	F
<p>COMMITMENT. Vivo fails to disclose its chemical management strategy, nor has it publicly committed to eliminate chemicals of concern such as PVC, BFRs and phthalates from it products.</p>	F
<p>PERFORMANCE. Vivo fails to disclose its chemical management strategy, nor make public a supplier code of conduct. Vivo is one of the few companies in the Guide that are not members of EICC, which requires regular auditing of its suppliers against a standard code of conduct.</p>	F
<p>ADVOCACY. No evidence found of positive or negative advocacy</p>	-

ENDNOTES

- 1 IDC, "Worldwide Smartphone Company Market Share"
<https://www.idc.com/promo/smartphone-market-share/vendor>
- 2 <https://www.ifixit.com/smartphone-repairability>



Xiaomi

Although not as popular as its fellow Chinese competitors in the global smartphone market share, Xiaomi has secured its position in the top five of the Chinese Market.²²⁸ Xiaomi advertises itself as a smart company driven by relentless technology innovation and attractive product design. Despite its branding effort to resemble the minimalist style of Apple, Xiaomi does not show similar commitment in environmental responsibility. Similar to Oppo and Vivo, Xiaomi is falling way behind in sustainability performance.

Renewable Energy & Climate Change

F

TRANSPARENCY. Although Xiaomi's website provides limited information regarding "product environmental information," it does not disclose any emission data. Like the other two Chinese brands Oppo and Vivo, Xiaomi does not publish a CSR report.

F

COMMITMENT. As Xiaomi fails to properly disclose its sustainability strategy and performance, we are not able to evaluate its renewable energy commitment.

F

PERFORMANCE. As Xiaomi fails to properly disclose its sustainability strategy and performance, we are not able to evaluate its renewable energy performance.

F

ADVOCACY. No evidence found of positive or negative advocacy

-

Sustainable Design & Resource Reduction

F

TRANSPARENCY. Xiaomi does not report publicly on its overall material use, its use of recycled materials, or data on its take-back efforts.

F

COMMITMENT. Xiaomi fails to properly disclose its sustainability strategy or made any public commitment to reduce the impact its products have through the use of recycled materials or long lived product design.

F

PERFORMANCE: CIRCULAR PRODUCTION. As Xiaomi fails to properly disclose its sustainability strategy and performance, it's difficult to evaluate Xiaomi's efforts to move toward circular production. Xiaomi provides take-back services in China²²⁹ and India²³⁰, though it's not clear electronics recycled are processed responsibly/safely.

D

Sustainable Design & Resource Reduction (continued)		F
PERFORMANCE: PRODUCT LIFE EXTENSION. In recent repairability assessments, Xiaomi phones scored average to good. ²³¹ Xiaomi appears to sell a limited number of refurbished products. ²³² Xiaomi does not provide repair manuals or spare parts to the public.		D
ADVOCACY. No evidence found of positive or negative advocacy		–

Hazardous Chemical Elimination: Products & Supply Chain		F
TRANSPARENCY. Xiaomi does not disclose information about chemical management in its products or supply chain.		F
COMMITMENT. Xiaomi fails to disclose its chemical management strategy, nor has it publicly committed to eliminate chemicals of concern such as PVC, BFRs and phthalates from its products.		F
PERFORMANCE. Xiaomi fails to disclose its chemical management strategy, nor make public a supplier code of conduct. Xiaomi is one of the few companies in the Guide that are not members of EICC, which requires regular auditing of its suppliers against a standard code of conduct.		F
ADVOCACY. No evidence found of positive or negative advocacy		–

ENDNOTES

- 1 <https://www.idc.com/getdoc.jsp?containerId=prAP42292517>
- 2 <https://huanxin.mi.com/>
- 3 https://www.mi.com/in/service/recycling_guide/
- 4 <https://www.ifixit.com/smartphone-repairability>
- 5 <http://www.mi.com/sg/note/>

The logo features the word "GREENPEACE" in a bold, white, sans-serif font with a slightly irregular, hand-drawn appearance. Below it, the word "Reports" is written in a smaller, clean, white sans-serif font. The text is centered within a solid green rectangular background.

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The title text is positioned in the upper right area of the bottom section. It consists of two lines of bold, black, sans-serif text. The background behind the text is a light gray with a faint, repeating pattern of a circuit board.

**GUIDE TO GREENER ELECTRONICS -
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