LENOVO ELECTRONICS END OF LIFE STANDARD FOR SUPPLIERS STD- 00031

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1.0 Introduction

Lenovo is committed to protecting the environment and pursuing environmental leadership in its business activities. As a part of this commitment, it is Lenovo's desire to do business with suppliers who are environmentally responsible and to encourage environmental awareness among suppliers. This document, *Lenovo Electronics End-of-Life Standard for Suppliers* (Standard), identifies the minimum requirements for Lenovo suppliers that provide activities and services to manage a product, part, or component when it reaches the end of its useful life.

2.0 Scope

This Standard provides guidance on the minimum environmental requirements applicable to Lenovo products, parts, or components that will be processed for reuse (refurbish/repair), recycling, or disposal. Lenovo's Environmental Management System requires that each supplier's facility providing these services for Lenovo meet these requirements. This is a global standard, and it is applicable to suppliers providing the following services:

- Asset recovery services (ARS)
- Lenovo Certified Refurbished (LCR)
- Dismantling and scrapping
- Recycling
- Brokers/Resellers
- Surplus Buyers
- End of lease services
- Disposal of hazardous or special waste
- Warranty depot and parts fulfillment

These requirements apply to both Lenovo branded and non-Lenovo branded products, parts, or components. Suppliers providing services for take-back programs defined by federal, state, local or other jurisdiction regulations or laws where Lenovo is mandated to use the supplier through the program (e.g. recycling consortia or schemas), Lenovo approvals may not be required.

3.0 Terms and Definitions

Asset Recovery Services (ARS): A service offered by Lenovo to business customers to manage the disposition of a business customer's IT assets through Lenovo's network of approved ARS suppliers.

Brokers and Resellers: A supplier or company that purchase Lenovo's products, parts or components that are new, unused, closed-box and fully functional for resale to end users for the original intended use. Brokers and resellers do not perform any value add to the products, parts or components such as cleaning, refurbishment, repair or testing and do not perform any modification to the products, parts, or components.

They do not generate any industrial, electronic or hazardous waste from services such as refurbishment, repair, dismantling, reclamation or recycling. *Note- a Lenovo business unit and/or contract may use a different definition for broker and reseller that may differ from the definition in this Standard. The definition in this Standard is used for the purposes of evaluating if a supplier is engaged in PELM activities for Lenovo.*

Downstream Supplier: The facilities/companies that receives the supplier's products, parts, components or separated materials for additional processing or final disposition, including reuse, refurbishing, demanufacturing, processing, materials recovery, energy recovery, incineration, and disposal facilities.

Final Disposition: The last point in a downstream supplier chain where the materials separated from the original products, parts or components are either 1) prepared for use as commodities for manufacturing, 2) sold for reuse, or 3) disposed (energy recovery or landfill disposal).

Handler: A supplier or company that collects or transports end-of-life equipment to a supplier where demanufacturing for disposal, compacting, shredding, or other treatments are performed.

Hazardous Waste: Any waste so designated by a national, state or local government.

Lenovo Certified Refurbished (LCR): Lenovo equipment refurbished using Lenovo certified options and parts, ensuring quality and reliability as new.

Materials of Interest: Materials contained within products, parts, or components that pose a risk to the environment and workers if handled and managed improperly. Lenovo defines materials of interest as: 1) Cathode ray tubes (CRTs), 2) Flat panel displays (e.g. liquid crystal displays (LCDs) and plasma screens), 3) Circuit boards, 4) Mercury lamps or switches, 5) Batteries, all types, 6) Any other electronic components containing lead, mercury, cadmium, hexavalent chromium, beryllium, or polychlorinated biphenyls (PCBs), and 7) Plastics.

Organization for Economic Cooperation and Development (OECD): an international, intergovernmental economic organization comprised of member countries that meet the organization's criteria. A list of member countries can be found on the OECD website: http://www.oecd.org/.

Other Managed Waste: For purposes of supplier evaluations, this applies to polychlorinated biphenyls (PCBs).

Products: An article or object that includes assemblies, subassemblies, parts, components, major new feature releases, field maintenance tools, field use materials and can be Lenovo brand or other brand.

Product End-of-Life Management (PELM): The activities to manage a product, part, or component when it reaches the end of its life or use, including reuse, refurbishing, remanufacturing, demanufacturing, dismantling, reclamation, shredding, recycling, treatment and disposal of the product, part, and component when the product, part or component is taken out of service, reaches end-of-life or end-of-lease, and/or scrapped by a consumer, SMB or commercial customer and/or Lenovo. PELM activities apply to: 1) Lenovo branded and non-branded products owned, processed on behalf or accepted by Lenovo through trade-ins, take-back programs, ARS, end-of-lease, etc.; 2) Retailer, distributor, channel, Lenovo returns, surplus, excess and obsolete inventory; 3) Recovery and reuse of products, parts, and components, including scrap electronic and electrical components generated by Lenovo during manufacturing, R&D or employee use and Lenovo internal assets or inventory; and 4) Used, returned, defective and/or non-functional products.

Refurbisher/Remanufacturer: Lenovo locations or suppliers who refurbish end-of-life product, parts, or components for the purpose of returning the products, parts or components to original condition for reselling to end users.

Special Waste: Lenovo characterizes certain wastes as special waste to ensure they are properly managed regardless of their designation by a national, state or local government. Examples would include but not be limited to: flammable or toxic solvents, solvent based ink and paint wastes, petroleum oils, strong acids and caustics, corrosives, lead, cadmium, color cathode ray tubes, precious metals, mercury bearing lighting lamps, circuit boards containing greater than 200 parts per million of beryllium, and medical waste (including blood waste).

Surplus Buyer: Surplus Buyer means an Enterprise who purchases Open Box, dead on arrival (DOA), defective, damaged, samples, returned closed box with custom customer imaging, or warranty returned products or parts for the purpose of refurbishing and reselling those products or parts as "used" or "refurbished" to end users.

4.0 Supplier Requirements

4.1 Requirements Overview

Suppliers shall agree to comply with the minimum requirements in this Standard document as well as Lenovo's Supplier Code of Conduct which includes requirements for ethical dealings, business integrity, human rights, supply chain working conditions, non-discrimination and non-retaliation, and more.

Suppliers must maintain compliance with all applicable international, national, state, and/or local laws and regulations. If a requirement in this document is in direct conflict of a law or regulation, the law or regulation will take precedence. Lenovo suppliers must have and maintain all required operating permits, licenses and authorizations, and import/export permits required to carry out services provided to Lenovo.

All suppliers' facilities that conduct the services outlined in this Standard must go through a Lenovo environmental audit/evaluation and approval process prior to receiving and processing products, parts or components in their facility. If the supplier uses a sub-contractor, then the sub-contractor's facility must go through a Lenovo environmental audit/evaluation and approval process prior to receiving and processing the Lenovo products, parts, or components in their facility. Lenovo reviews and approves suppliers on a facility level. The process includes:

- An authorized individual at each supplier facility must complete, sign and date the *Lenovo Pre-Audit and Downstream Questionnaire* document. This document gathers information used for the audit evaluation including: facility specific information, processing capabilities, environmental, health, safety, logistics, documentation, downstream suppliers, data security, insurance information and employee training. The *Lenovo Pre-Audit and Downstream Questionnaire* document is considered the supplier's self-declaration.

- The information disclosed by the supplier in the *Pre-Audit and Downstream Questionnaire* will be verified by Lenovo Global ESG and if the supplier is deemed qualified, an on-site environmental audit/evaluation will be performed. This audit will be performed by a Lenovo ESG approved auditor (e.g. third party contracted by Lenovo).

- Suppliers must cooperate with Lenovo's auditor to schedule the on-site audit and provide all requested information and documentation prior to, during and after the on-site audit. Suppliers must thoroughly address any findings through a corrective action process in a timely manner. Lenovo will only approve suppliers that have satisfactory audit results with completed corrective action plans. If the supplier facility is approved by Lenovo, an on-site environmental audit/evaluation will be performed every 3 (three) years. Lenovo may also conduct annual desktop audits. In addition, Lenovo or its contracted third party will be allowed to enter the approved facility at any time during normal business hours for an unannounced surveillance audit if requested.

- A comprehensive financial and business process review will be completed by procurement and the business area within Lenovo requiring the service.

4.2 Required Accredited Certifications

All PELM Suppliers must have an accredited certification for an environmental management system (e.g. ISO 14001 or RIOS).

Suppliers providing Asset Recovery Services (ARS) must have the following certifications:

- Electronics recycling standard (e.g. R2 or e-Stewards)
- Quality management system (e.g. ISO 9001 or RIOS)
- Environmental management system (e.g. ISO 14001 or RIOS)
- Health and safety management system (e.g. ISO 45001, RIOS, or AS/NZS 4801)
- Information security management system (e.g. ISO 27001)

Surplus Buyers and LCR Suppliers buying and/or refurbishing Lenovo products must have the following accredited certifications:

- Quality management system (e.g. ISO 9001 or RIOS)
- Environmental management system (e.g. ISO 14001 or RIOS)
- Health and safety management system (e.g. ISO 45001, RIOS, or AS/NZS 4801)

In countries where Lenovo has products registered in the EPEAT program, suppliers providing recycling and product take-back/ARS/ Surplus Buyer/LCR services must have current certifications for an EPEAT accepted accredited electronics recycling standard certification that also meet the Lenovo Standard requirements (R2 or eStewards). Where a supplier is only providing recycling services WEEELABEX v.10 or EN 50625 is also an accepted recycling standard.

ARS requirements supersede LCR requirements when the source of product for LCR is ARS/enterprise customer product. Lenovo may require suppliers to have additional certifications. Exceptions or equivalents to certifications listed above are subject to Lenovo's approval.

4.3 Environmental Management

Lenovo suppliers must conduct their operations in an environmentally responsible way and apply effective environmental management practices. Suppliers will develop and maintain an environmental management system (EMS). Certification to an environmental management system standard (e.g. ISO 14001 or RIOS) demonstrates compliance with this EMS requirement. EMS documentation must be reviewed periodically and updated when changes occur.

Suppliers must prioritize reuse and material recovery over disposal activities unless there are special circumstances outlined in the Lenovo Statement of Work.

In addition to any restrictions imposed by law, suppliers must have procedures for the proper management of materials of interest, including identifying, processing, storing, treating and management throughout the downstream supply chain. Materials of interest, whether broken (including shred) or intact, must not be landfilled (any deviation, due to local situations, must be approved by Lenovo in advance). Materials of interest include:

- Cathode ray tubes (CRTs)
- Flat panel displays (e.g. liquid crystal displays (LCDs) and plasma screens)
- Circuit boards
- Mercury lamps or switches
- Batteries, all types
- Any other electronic components containing lead, mercury, cadmium, hexavalent chromium, beryllium, or polychlorinated biphenyls (PCBs)
- Plastics

Supplier must have controls in place to monitor and prevent pollution and discharges. Supplier must have the necessary active permits, licenses, approvals and other required government documentation appropriate for the types of products, parts and components the supplier is handling. Supplier must develop and maintain written processes for receiving, storing, processing, and transporting appropriate for the types of products, parts and components the supplier is handling.

Suppliers must ensure that all sub-contractors and downstream vendors meet and comply with the requirements in this Standard. Suppliers shall ensure that handlers, collectors and transporters follow applicable Lenovo requirements in this Standard. Lenovo requires downstream transparency and the disclosure of all sub-contractors, collectors, handlers, transporters and downstream vendors that collect, handle, process/treat products, parts and components from time of initial collection/possession through to final disposition or resale to a customer/consumer. Supplier must demonstrate proper documentation and records for all transactions with downstream vendors. Suppliers will develop and maintain a downstream vendor selection and management process that demonstrates that the downstream vendors are evaluated annually (with at least one on-site evaluation every 3 years) to be compliant with legal requirements and properly manage environmental, health, safety, and product/data security risks.

4.4 Health and Safety:

Lenovo suppliers must operate an occupational health and safety (OH&S) management system in order to provide a safe working environment for employees. Lenovo requires suppliers to assess workplace conditions and potential risks while providing training, equipment and controls for employees to minimize injuries, exposures and illnesses. The OH&S management system documentation must be reviewed periodically and updated when changes occur. Certification to a health and safety management system standard (e.g. ISO 45001, RIOS, or AS/NZS 4801) demonstrates compliance with this OH&S management system requirement.

Supplier must have an employee safety training program and provide the proper personal protective equipment (PPE) to employees. Supplier will have an emergency preparedness program and have appropriate emergency equipment/supplies and signage in the facility. Lenovo requires suppliers to appropriately track, respond to and report health and safety incidents and violations.

4.5 Site Security and Controls:

Supplier's site security program must be designed and maintained in a manner to ensure the protection of Lenovo's products, parts and components from the time of receipt, transit, transfer, and throughout processing activities within the supplier's facility. The site security program and process control documentation must be reviewed periodically and updated when changes occur.

Security systems must be risk based and control access to areas that contain products, parts and components. Security monitoring must include 24/7 monitoring capability, internal and external video surveillance, secure building construction and doors, fencing/gates, and lighting. Systems must be checked and maintained on a regular basis.

Security process controls must be documented and must include employee access controls (e.g. authorized employee access policies, badging and identification), concealed theft prevention/detection

(e.g. metal detector, X-ray or handheld wand, security guard/officer), signage, HR policies (e.g. incident reporting and escalation and employee criminal background checks), employee training, ingress/egress controls, and visitor access controls. Lenovo requires suppliers to appropriately track, respond to, report and correct security incidents and violations.

Supplier's must ensure the physical protection of data storage devices from the time of receipt, transit, transfer, and throughout processing activities within the supplier's facility.

Business process controls must include inventory controls, loading/unloading/in-transit controls (e.g. driver requirements, security seals, and truck security).

The supplier shall ensure access control systems (physical and electronic) log all access attempts, both authorized and unauthorized. Log data must be archived for a period of at least 60 days.

4.6 Product Processing and Data Sanitization

Lenovo's suppliers must maintain and demonstrate appropriate products, parts and components handling operations and processes related to transportation/logistics, housekeeping, waste analysis practices, inventory control/tracking, testing, repair, refurbishment, recycling or disposal.

Suppliers performing test, repair and refurbishing activities of product, parts, and components will develop and maintain a quality management system (QMS). QMS documentation must be reviewed periodically and updated when changes occur. Certification to a quality management system standard (e.g. ISO 9001 or RIOS) demonstrates compliance with this QMS requirement.

Supplier's data sanitization/destruction program must be designed and maintained using to meet or exceed the National Institute of Standards & Technology (NIST) SP800-88 Rev.1 Standard. Data sanitization/destruction process control documentation must be reviewed periodically and updated when changes occur. Supplier must ensure all data containing devices and storage media are fully erased or physically destroyed. Data sanitization must be verified and well-documented for each device. Supplier must maintain an audit program, by a third party (preferred) or internal party independent from the data wiping group, that verifies data erasure on a sample of wiped devices.

4.7 Insurance Guidelines

Supplier shall maintain, at its expense, insurance to cover risks and liabilities resulting from its electronics processing activities, including environmental pollution and worker health and safety.

The minimum level of Commercial Liability Insurance shall be considered USD $1,000,000 per occurrence.

A Commercial Field Underwriter or Risk Manager in the Insurance field shall be used to determine whether Pollution Liability Insurance is required. The supplier must inform this party of their environmental, health and safety risks.

Automobile Liability Insurance covering all owned, non-owned and hired vehicles in the amount of USD $1,000,000 combined single limit.

Property and transit insurance covering Lenovo's interests in property value in various forms of process. In no event shall coverage be less than the actual cash value of property including labor, materials and equipment to be used for completion of the services performed under this contract against all risks of direct physical loss, excluding earthquake and flood, for an amount equal to the full amount of the contract.

Exception or equivalents to insurance requirements listed above are subject to Lenovo approval. Lenovo

reserves the right to require additional insurance coverage.

4.8 Business Continuity and Closure Plans

Supplier shall maintain a written plan for continuing business in the event of disaster or other business disruptions.

Supplier must also maintain a written closure plan documenting a detailed plan for managing products, parts and components and facility decommissioning in event of closure or abandonment of its facility. The closure plan must be updated when changes occur or every two years at a minimum.

The closure plan must include detailed closure costs estimates and the financial instrument in sufficient amounts to meet estimated costs that assures proper closure of the facility. Examples of sufficient financial instruments include trust, insurance policy, bond or other instrument that protects its money so that it may only be spent for the purpose of clean up in the event of a closure, bankruptcy, etc.

Exemptions or alternative requirements to the financial instrument may be granted by Lenovo if supplier demonstrates it meets requirements in the qualified electronics recycler standard to which the supplier's facility is currently certified.

4.9 Legal Compliance and Transboundary Movement

Supplier shall maintain legal expertise to understand current and emerging legal requirements appliable to the services provided to Lenovo and the types of products, parts and components processed in the supplier's facility. Supplier's legal compliance system must include monitoring and maintaining compliance program to meet applicable law and regulation requirements. Legal compliance system documentation must be reviewed periodically and updated when changes occur.

Supplier must have and maintain all required operating permits, licenses and authorizations, import and/or export permits required to carry out the services provided at the facility. Supplier will report any fines, violations and noncompliance issues to Lenovo within two (2) business day that occur to supplier, supplier's sub- contractors or supplier's downstream vendors.

Supplier, sub- contractors and downstream vendors must comply with all international waste trade agreements and legal requirements and obtain the necessary authorizations, approvals, permits, licenses, and/or certifications when exporting and importing products, parts and components.

Lenovo does not allow suppliers or its sub-contractors and downstream vendors to transport hazardous waste, electronic waste, or non-functioning products, parts or components for disposal from an Organization for Economic Co-Operation and Development (OECD) member country or the European Union (EU) member country to a non-OECD/EU country either directly or through intermediaries.

Note: Beyond the basic terms and conditions, agreements with brokers and/or resellers to purchase surplus or used equipment directly from Lenovo for the purpose of reselling to end users or other resellers should include the requirement not to resell into non-OECD countries, without prior approval from Lenovo.

Suppliers may check the technology controls classification known as Export Controls Classification Number (ECCN) of the Lenovo product when shipping a Lenovo product across borders by emailing export_c@lenovo.com for assistance.

4.10 Reporting

Suppliers must provide recycling, reuse and disposition data to Lenovo at a frequency determined by Lenovo (e.g. quarterly). The report will include name and location of facility where processing occurred, type and weight of material reused or resold, recycled, incinerated with energy recovery, incinerated as treatment, landfill disposal and amount of waste considered hazardous waste.

5.0 References

- Lenovo's *Supplier Code of Conduct*, found on Lenovo's Sustainability Resources webpage
- Lenovo's Environmental Affairs Policy https://www.lenovo.com/us/en/social_responsibility/environmental_policy/
- *The Sustainable Electronics Reuse and Recycling (R2) Standard*, Version 3.0, available on SERI's website for download https://sustainableelectronics.org/r2
- National Institute of Standards & Technology (NIST) *Guidelines for Media Sanitization*, SP800-88 Rev.1, available on NIST's website for download https://csrc.nist.gov/publications/detail/sp/800-88/rev-1/final
- EPEAT Computers and Displays Category criteria, based on IEEE 1680.1™– 2018 Standard for Environmental and Social Responsibility Assessment of Computers and Displays, available on the Global Electronics Council website for download https://globalelectronicscouncil.org/updated-epeat-criteria/
- EPEAT Server Category criteria, based on NSF/ANSI 426-2018 Environmental Leadership and Corporate Social Responsibility Assessment of Servers, available on the Global Electronics Council website for download https://globalelectronicscouncil.org/updated-epeat-criteria/
- *Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal*, available on the UN Environment Program website for download http://www.basel.int/TheConvention/Overview/tabid/1271/Default.aspx