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Customer Success Is Our Mission

MISSION:
A WORLD OF INNOVATION

E-Waste:

Limiting export of counterfeit supplies, technology and data loss while creating precious and rare earth resource streams

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General Session- ***April 22nd, 2015 09:45 – 10:15***

Outline:

1. Current State- *National & Industrial E-Waste Reclamation*
2. Government & Industrial Base: *E-waste Issues*
3. Proposed RERA Legislation *{HR.2791 / S.2090}*
4. Senate Hearing- *Expert Panel Washington DC, July 8th 2014*
5. Program Protection Plan- *Contingency Requirements*
6. CAER & Industry Leaders
7. Certified Domestic E-Waste Recyclers
8. Potential Domestic Downstream Supplies
9. Recapture of Base, Rare Earth & Critical Minerals
10. Conclusions & Recommendations

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National E-Waste Reclamation Issues: *Current State*

- Residential & Commercial Recycling
  - No policies regulating / restricting E-waste collections, handling & export
    - Collected at recycle centers / events "packed & stacked" into transport containers
    - Containers auctioned or exported to offshore "processing" facilities
    - High value components within: computers, disk drives / arrays, cell phones, CCA's, network interfaces, consumer electronics, gaming consoles, video / audio electronics, monitors, TV's > HDTV's, satellite & cable converters, etc.
- Industry & Government E-Waste
  - No policies regulating / restricting E-waste collections, handling & export
    - No requirements to use certified **"R2 RIOS"** or **"e-Steward"** facilities. Two Industry recycling standards ***are Voluntary!***
    - Handling / disposition of non-classified memory bearing devices data sanitization, destruction, re-use or chain of custody
    - Potential IP, identity theft & ITAR issues
    - International Pollution, Health Hazard & Child labor Issues

No restrictions on who buys, sells, ships discarded electronics

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National E-Waste Reclamation Issues: *Current State*

- Factor influencing E-waste processing:

  1. Cost Containment **2.** Compliance with- Federal / State / local EPA regulations

  – Applies to Commercial, Industrial & Government reclamation
    - E-waste collected, re-sold to bidding brokers / exporters
    - Containers exported primarily to China, despite a ban enacted in **2000** to prevent the import of E-waste
    - **16 Billion pounds** of E-waste illegally imported **annually**
    - Material concealed & mis-declared at points of entry

- Issues: ***Federal Government, DoD, DHS & IPR Concerns***

  >> Intellectual property theft
  >> Data loss leading to security breaches
  >> PII identity theft
  >> ITAR violations
  >> Primary source of counterfeit components
  >> Adversary technology capability: valuable electronics "Re-use / re-purpose"
  >> Backdoor insertion / access through IC's & Firmware

E-waste contributes to counterfeits & security breaches

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Responsible Electronics Recycling Act: *{HR 2791, S.2090}*

Key Elements: (Proposed)

- 30 months after enactment, **Restrict** export of un-useable / un-tested electronics to *non-member* countries
  - Organization for Economic Cooperative Development: **34** Countries, includes U.S.
  - European Union (EU): **28** Countries (some are members of both)
  - Non-working, un-tested, discarded electronic components & devices
  - Includes CCA's, LCD displays, Leaded glass (CRT's), Lead, Beryllium
  - Critical Material / Minerals- considered to be in short supply, rare or strategic to the economic vitality to the domestic Industrial Base
- **Not Restricted**
  - Used & Refurbished Working Electronics Equipment: Tested, acknowledgement by officials in receiving country. Proof of testing / functionality **required**
  - Warranty Returns / replacements by companies doing business in the US in non-member countries. Official agreements **still apply**
  - Electronics & Equipment **PROPERLY** packaged for export!

Restricts export of non-working electronics & rare / critical minerals

Responsible Electronics Recycling Act: *{HR 2791, S.2090}*

- **Not Restricted** (Continued)
  - Leased Equipment, Buyback, Trade-Ins or asset recovery as part of a leasing or recycling program by companies doing business in the U.S.
  - Electronics recalls by international OEM or ODM. MUST have assets and a presence in the U.S.!
  - Common metals (smelting), Plastics and other sorted recyclable materials
  - Phosphor free glass cullet: Furnace ready, processed leaded glass from CRT collections
- Includes testing requirements and established licensing entities
- Promote downstream recycling research (EPA)
  - Separation & reclamation of precious, rare earth & critical minerals
- Grants provided by Secretary of Energy: R&D of cost effective / safe technologies that extract rare earth, critical & precious metals from electronics
- Review of restrictions, 18 months following enactment & public comment. Add or modify covered electronics

Downstream reclamation technology & Infrastructure needed

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RERA- Legislation & Government Activity

- Government sponsors: {Early stage activities}
  - Legislation submitted to congress
    - Introduced to House (July 2013); Senate (March 2014)- read & referred to committees
      Rep. Green (TX)- 22 house cosponsors
      Bi-partisan Co-sponsors: (3R) Coffman, Stivers, McCaul; (2D) Thompson & Slaughter
      Sen. Whitehouse (RI)- briefing held July 2014
- Senate Hearing: July 8th, 2014
  - Electronics Industry Supply Chain Experts
    - Henry Livingston (BAE), Tom Sharpe (SMT Corp.) & Jim Burger (Thompson Coburn)
    - Briefing focused on E-Waste, national security & counterfeits
    - Presented: "Electronic Waste Dumping & Semiconductor Counterfeiting"
  - Panel re-iterated Issues
    - Used electronics being counterfeited & returned to the supply chain
    - Increase of domestic E-waste recycling will promote downstream material reclamation
    - Valuable Industry materials are lost forever in international E-waste dumps

Addresses many issues- Requires inputs from EPA & industry

DoD, Contractor & Industry Activities

- Program Protection Plan {DoD, Systems Engineering}
  - DoD requires a risk management / mitigation plans for key programs
    - Includes a section supply chain risk mitigation
    - Components / Materials effecting system functionality and availability
    - **Factors:** Technology availability, cost & schedule
    - Requires contingency sources if industry supplies are compromised
- Industry Sponsors www.americanerecycling.org
  - Coalition for American Electronics Recycling (CAER)
    - Formed in 2011, represents domestic electronics recycling industry
    - 140 supporting member companies, 300 facilities in 35 states
- Industry Leaders (Through Corporate Responsibility & EHS Initiatives)
  - Computer & electronics companies, taking some action (from disposal standpoint)
  - DoD Prime OEM Leaders Including Raytheon, pledge responsible recycling
  - Use certified facilities, ensure chain of custody & data sanitization
  - Re-purpose / re-use electronics where feasible to offset recycle costs

DoD & Industry- Phased approach to EOL material management

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Corporate Responsibility: *Environment & Sustainability*

2013

Corporate
Responsibility
Report

Raytheon

Sustainability

REDUCING OUR ENVIRONMENTAL IMPACT

AT RAYTHEON, WE ACTIVELY ENGAGE OUR EMPLOYEES, OUR CUSTOMERS, OUR SUPPLIERS AND OUR COMMUNITIES IN THE SHARED RESPONSIBILITY OF PROTECTING OUR ENVIRONMENT AND CONSERVING NATURAL RESOURCES. AS PART OF OUR SUSTAINABILITY PROGRAM, RAYTHEON HAS SET 15 LONG-TERM SUSTAINABILITY GOALS ACROSS A WIDE RANGE OF AREAS, INCLUDING OPERATIONS, SUPPLY CHAIN, ENGINEERING, INFORMATION TECHNOLOGY (IT), AND ENVIRONMENTAL, HEALTH AND SAFETY (EHS). THE TABLE TO THE RIGHT ILLUSTRATES OUR PROGRESS TOWARD ACHIEVING THE GOALS.

EHS ENGAGEMENT AND GOVERNANCE STRUCTURE

OUR SENIOR LEADERS ARE **ACTIVELY ENGAGED**

in our EHS initiatives, which helps drive broad employee participation in our EHS programs. A set of robust policies and practices, including our Environmental, Health and Safety Management System Policy (modeled after ISO 14001), governs these programs. The policy covers subjects ranging from management leadership, goal setting, identification of hazards, roles and responsibilities, training, employee participation, tracking of metrics, investigation and corrective action, EHS auditing and continuous improvement.

ENERGY MANAGEMENT

ENERGY STAR AWARD 2013 PARTNER OF THE YEAR Sustained Excellence

For the seventh consecutive year, Raytheon received an ENERGY STAR Sustained Excellence Award for continued leadership in protecting our environment through superior energy efficiency. The award was given by the U.S. Environmental Protection Agency (EPA). Raytheon has reduced its energy consumption by 12% since 2008 and 19% since 2002, cumulatively reducing costs by $123M since 2002.

ENERGY CONSUMPTION

-12% SINCE 2008

-19% SINCE 2002

GREENHOUSE GAS EMISSIONS

CLIMATE LEADERSHIP AWARDS

Raytheon received a 2013 Climate Leadership Award in recognition of its significant progress in cutting greenhouse gas emissions and achieving its reduction goal ahead of schedule. Emissions have been reduced 23% since 2008 and 35% since 2002, preventing 1.3M metric tons of greenhouse gas emissions cumulatively since 2002. The award was sponsored by the U.S. EPA in partnership with the Association of Climate Change Officers (ACCO), the Center for Climate and Energy Solutions (C2ES) and the Climate Registry.

GREENHOUSE GAS EMISSIONS

-23% SINCE 2008

-35% SINCE 2002

Report- *Energy Consumption, GHGs, Recycling & Waste; CRR Published in June*

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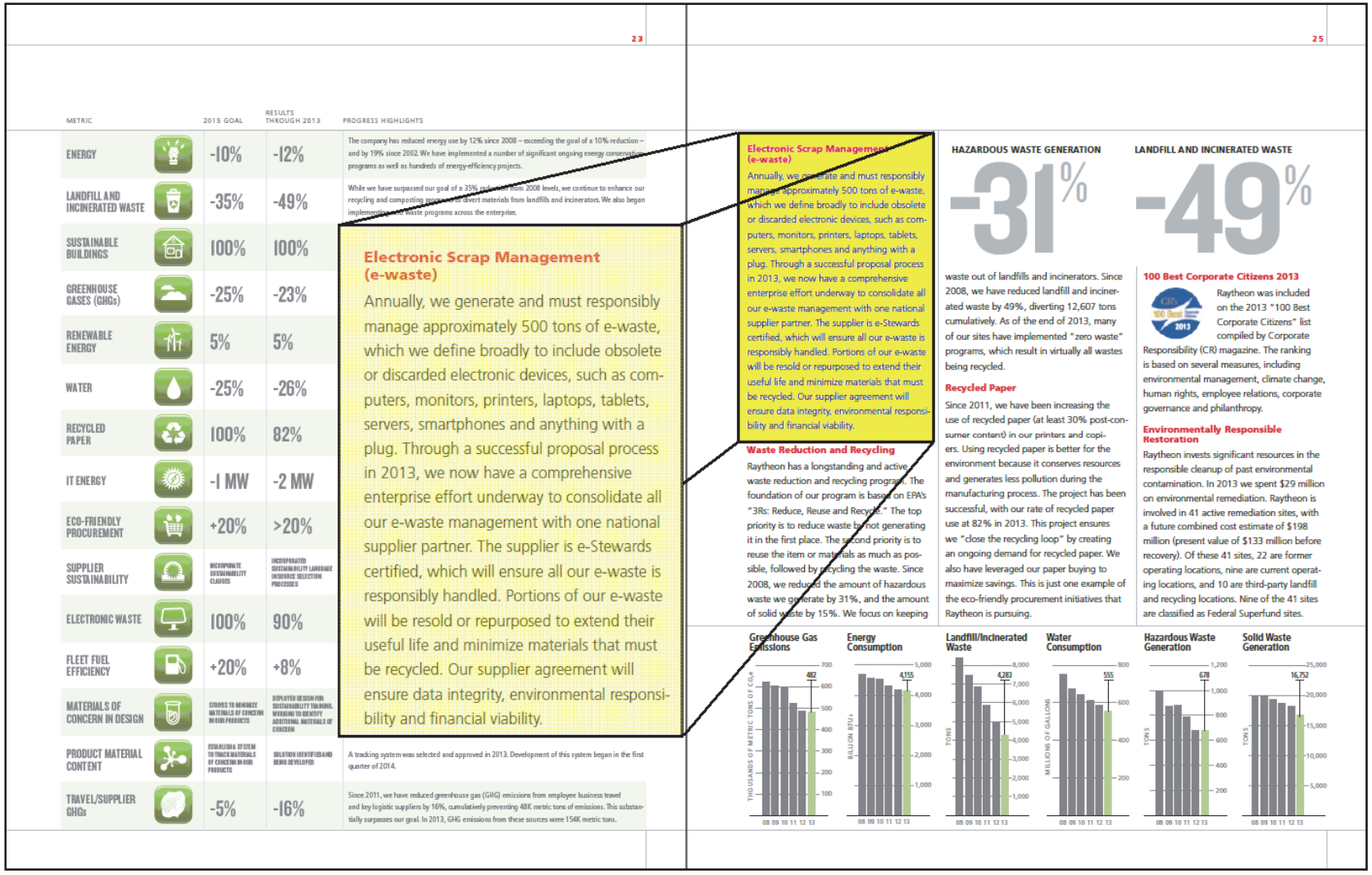
Corporate Responsibility: *E-Waste Management*



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METRIC	2015 GOAL	RESULTS THROUGH 2013	PROGRESS HIGHLIGHTS
ENERGY	-10%	-12%	The company has reduced energy use by 12% since 2008 – exceeding the goal of a 10% reduction – and by 19% since 2002. We have implemented a number of significant ongoing energy conservation programs as well as hundreds of energy-efficiency projects.
LANDFILL AND INCINERATED WASTE	-35%	-49%	While we have surpassed our goal of a 35% reduction from 2008 levels, we continue to enhance our recycling and composting programs to divert materials from landfills and incinerators. We also began implementing waste programs across the enterprise.
SUSTAINABLE BUILDINGS	100%	100%	
GREENHOUSE GASES (GHGs)	-25%	-23%	
RENEWABLE ENERGY	5%	5%	
WATER	-25%	-26%	
RECYCLED PAPER	100%	82%	
IT ENERGY	-1 MW	-2 MW	
ECO-FRIENDLY PROCUREMENT	+20%	>20%	
SUPPLIER SUSTAINABILITY	INCORPORATE SUSTAINABILITY CLAUSES	INCORPORATED SUSTAINABILITY LANGUAGE INSOURCE SELECTION PROCESSES	
ELECTRONIC WASTE	100%	90%	
FLEET FUEL EFFICIENCY	+20%	+8%	
MATERIALS OF CONCERN IN DESIGN	STRIVES TO MINIMIZE MATERIALS OF CONCERN IN OUR PRODUCTS	DISPLAYED DESIGN FOR SUSTAINABILITY TRAINING, WORKING TO IDENTIFY ADDITIONAL MATERIALS OF CONCERN	
PRODUCT MATERIAL CONTENT	ESTABLISH A SYSTEM TO TRACK MATERIALS OF CONCERN IN OUR PRODUCTS	SOLUTION IDENTIFIED AND BEING DEVELOPED	A tracking system was selected and approved in 2013. Development of this system began in the first quarter of 2014.
TRAVEL/SUPPLIER GHGs	-5%	-16%	Since 2011, we have reduced greenhouse gas (GHG) emissions from employee business travel and key logistic suppliers by 16%, cumulatively preventing 48K metric tons of emissions. This substantially surpasses our goal. In 2013, GHG emissions from these sources were 154K metric tons.

Electronic Scrap Management (e-waste)

Annually, we generate and must responsibly manage approximately 500 tons of e-waste, which we define broadly to include obsolete or discarded electronic devices, such as computers, monitors, printers, laptops, tablets, servers, smartphones and anything with a plug. Through a successful proposal process in 2013, we now have a comprehensive enterprise effort underway to consolidate all our e-waste management with one national supplier partner. The supplier is e-Stewards certified, which will ensure all our e-waste is responsibly handled. Portions of our e-waste will be resold or repurposed to extend their useful life and minimize materials that must be recycled. Our supplier agreement will ensure data integrity, environmental responsibility and financial viability.

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Waste Reduction and Recycling

Raytheon has a longstanding and active waste reduction and recycling program. The foundation of our program is based on EPA's "3Rs: Reduce, Reuse and Recycle." The top priority is to reduce waste by not generating it in the first place. The second priority is to reuse the item or materials as much as possible, followed by recycling the waste. Since 2008, we reduced the amount of hazardous waste we generate by 31%, and the amount of solid waste by 15%. We focus on keeping

HAZARDOUS WASTE GENERATION

-31%

LANDFILL AND INCINERATED WASTE

-49%

waste out of landfills and incinerators. Since 2008, we have reduced landfill and incinerated waste by 49%, diverting 12,607 tons cumulatively. As of the end of 2013, many of our sites have implemented "zero waste" programs, which result in virtually all wastes being recycled.

Recycled Paper

Since 2011, we have been increasing the use of recycled paper (at least 30% post-consumer content) in our printers and copiers. Using recycled paper is better for the environment because it conserves resources and generates less pollution during the manufacturing process. The project has been successful, with our rate of recycled paper use at 82% in 2013. This project ensures we "close the recycling loop" by creating an ongoing demand for recycled paper. We also have leveraged our paper buying to maximize savings. This is just one example of the eco-friendly procurement initiatives that Raytheon is pursuing.

100 Best Corporate Citizens 2013

Raytheon was included on the 2013 "100 Best Corporate Citizens" list compiled by Corporate Responsibility (CR) magazine. The ranking is based on several measures, including environmental management, climate change, human rights, employee relations, corporate governance and philanthropy.

Environmentally Responsible Restoration

Raytheon invests significant resources in the responsible cleanup of past environmental contamination. In 2013 we spent $29 million on environmental remediation. Raytheon is involved in 41 active remediation sites, with a future combined cost estimate of $198 million (present value of $133 million before recovery). Of these 41 sites, 22 are former operating locations, nine are current operating locations, and 10 are third-party landfill and recycling locations. Nine of the 41 sites are classified as Federal Superfund sites.

E-Waste: ***1,000,000lbs. Annually! Partnered with e-Steward certified supplier***

ISO-14001, RIOS R2:2013 ; e-Steward

Certified Domestic E-Waste Recycling

Secure Hardware & Data Destruction

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DoD / Aerospace & Electronics Industry Issues

- ✓ How can components be diverted from counterfeiters who return used IC's to the supply chain? Component destruction / data containment can be addressed **today!**
- ✓ Electronics & hazardous waste disposed of in accordance with Environmental Protection Agency regulations (Federal, State, Local). Addresses pollution but WHERE does it go? What is it used for?
- ✓ Defense & Aerospace systems contain high value components

Processors, Memory, Micro-controllers, FPGAs, Mil-Grade components, Disk Drives / Arrays

- ✓ Greater than 85% of system electronic components are commercial grade
- ✓ Chain of custody for failed / retired electronics does not address end item disposal
- ✓ DoD, MDA, DHS concur this is a system, reliability, readiness & security concern
- ✓ Technology export ITAR, IP Infringement, PII / sensitive data containment. Re-use, counterfeit & mal-ware insertion through E-Waste exports
- ✓ Procedures in place assure destruction of Classified / Critical Information
- ✓ Items related to ITAR Export restriction, chain of custody, data sanitization, critical material & mineral reclamation currently require additional program controls to address

Certified domestic E-waste recyclers have capabilities to address this!

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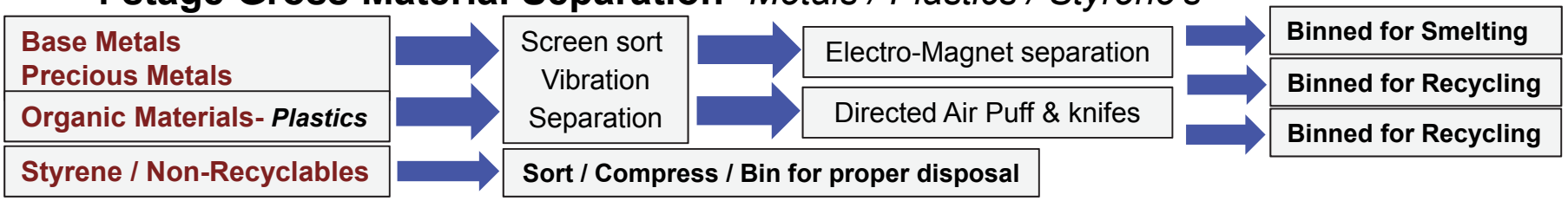
Secure Destruction- *E-Waste Hardware*

➢ **Industrial Shredder:** Multi-Stage Separation / Reclamation process

Crush & Shred- 2 Stage Multi-Tine electro-hydraulic roll pins ; 2x 750HP motors

4 stage Gross Material Separation- *Metals / Plastics / Styrene's*

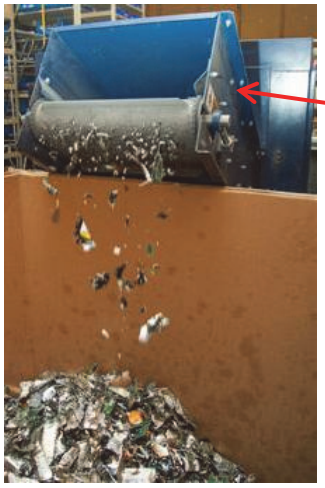


- Reclaimed Base, precious metals & plastic. **Primary stage separation**
- Hardware, data / disk & memory bearing devices destroyed post sanitization.

Based on customer requirements

Initial Shred

Shredder Facility @ TCG



Example, Material Separation

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Computer, network, data bearing devices & IC's destroyed

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Secure Destruction- *E-Waste Hardware*

➢Industrial Shredder 4 stage Separation- Secondary sort required to Consolidate precious metals, rare earths & Industry Strategic Critical Minerals

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Automated Industrial shredder- *Sorts & bins de-constructed materials*

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Secure Destruction- *Data Bearing Devices*

➢ Disk Drives (Storage): *ERASED*, devices recycled or *destroyed*

- Data security / destruction exceeds federal information protection acts (Multi Write-Clear operations)
- Limited / Restricted access to cleared (authorized personnel only)
- Multiple Hard Drive Interfaces:
  SATA, IDE, SCSI, ESDI, UDMA, Fibre Channel, USB

- Data destruction to **NIST STD 800-88** (TCG is a NAID member)
  [NAID = National Association for Information Destruction]
  - ➢ Write / Clear operations on all data bits 7 Times VS. 3 for MIL-STD
  - ➢ Longer cycle assures destruction of ALL critical data!
  - ➢ Suited for proprietary, sensitive, company information
- Classified & CPI/CI Assets- Handled separately IAW OEM / DoD requirements

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NIST standard is the preferred industry sanitization process

Secure Destruction- *Data & Other services*

➢ Memory devices:

- Solid state, microcontrollers, FPGAs destroyed IAW & secure hardware destruction process
- IC's mounted to CCA's, destroyed in shredder process

➢ Other Asset / E-Waste Services:

- Certificates of Information Destruction: Assures assets are sanitized
- On-site or remote witnessed destruction: Resources on-site observe destruction OR video provided with Destruction Certificates
- Microsoft certified asset refurbishment: Resell / reuse assets to offset recycling costs, Testing / refurbishment requirements imposed
- Annual / Semi-Annual equivalency reports: EPA Waste Reduction Model (WARM), EPEAT & EPA GHG calculators:
  - ✓ **Energy & Solid Waste Savings**
  - ✓ **Green House Gas reduction**
  - ✓ **Supports Corporate Responsibility / Sustainability *"Green"* initiatives**

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Hardware & Information Destruction *Driven by customer requirements!*

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Recommendations

- Containment & Chain of custody of retired / failed electronics takes planning. Requirements related to asset disposition / destruction **MUST** be flowed down to the E-waste recycler!
- Domestic ISO-14001, RIOS R2:2013 certified electronics recycling companies have Quality, Environmental & Security management systems in place to address the need of Secure Hardware & Data Destruction. **R2 RIOS >** implemented Jan. 2010 ; **540** Certified Facilities
- Alternate domestic e-Steward program, Basel Action Network focus on Pollution / Human rights violations offer equivalent services. **e-Steward >** implemented Apr. 2010 ; **72** Facilities (U.S. & Mexico), **13** companies in process
- **BOTH** certifications utilize Equivalent ISO / AS Quality Management & Safety Systems.
- Utilize ITAR registered facilities which have enhanced security measurements implemented. ***NOT*** a requirement of Certification programs, mitigates potential ITAR violations
- For secure information destruction use a NAID member, sanitization per **NIST STD 800-88**
- R2:2008 expired in 2014, Verify your E-Recycler is certified to R2:2013
- Some certified facilities in early collaboration with companies reclaiming rare earths & critical minerals (Yttrium >> IC's, Neodymium >> MLCC's & hard drives)

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Assured Containment, Traceability, Destruction of electronics / data

Downstream Reclamation: *Examples*

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Secondary sort, de-constructed material- Precious, Critical, Rare Earth Elements

Post E-Waste processing

Precious Metal Refining: Gold, Silver, Platinum, Palladium, Rhodium

Company working in sorted E-Waste & other industries, **Geib Refining Corporation** (Warkwick, RI)
www.geibrefining.com

Utilize proprietary Chemical dissolution & melting point separation techniques to extract metals of interest

Rare Earth Reclamation: Yttrium, Neodymium, Cerium, Europium

Y - Superconductors, ceramics, spark plugs, phosphors
Nd - High strength magnets, disk drives, ceramic capacitors
Ce - Yellow coloring in Ceramics, Capacitors **Eu** - CRT's, TV's, Fluorescent Lamps

Company working with post process E-Waste, **ReNew Rare Earth Inc.** (Alfred, NY)
renew-rareearth.com

Utilize Chemical dissolution & highly specialized separation techniques

Other Valuable Materials: Critical Elements- National & Industrial strategic importance

Barium / Titanium- Ceramic Capacitors **Tantalum**- Tantalum Capacitors

Gallium / Arsenic- IC's (GaAs), MMICs, IR-LED's, Solar Cells

Germanium- IC's (SiGe), heterojunction bipolar transistors (HBT)

Graphite, Indium, Magnesium, Tungsten, Others - Displays, nanotechnology, etc.

Domestic E-Waste Industry Growing- Secondary reclamation infrastructure needed!

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Conclusions

- EPA policies related to E-waste recycling have prompted the government to propose legislation to prevent the export of E-Waste
- Containment & secure destruction of electronics and data ensures legacy components do not re-enter the supply chain as new counterfeits!
- Domestic certified E-Waste companies have Quality, Environmental & Security management systems in place to address the need of secure hardware & data destruction
- Refurbishment for re-sale on LOW risk hardware, reduces reclamation costs. Work with a Certified Microsoft Asset refurbishment supplier
- Industry supporters cite secondary E-Waste processing could expand industry capabilities, to reclaim important materials and add jobs to the economy
- **Potential to Address:** Market volatility, provide a global market opportunity, supports alternate sources required under PPP's, reclaims material beyond base & precious metals!
- A domestic infrastructure and innovative technologies require development to reclaim precious, rare earth & critical elements. Some companies have initiated R&D efforts
- Computer, Network & OEM primes reducing waste & increasing sustainability by utilizing domestic certified E-Waste facilities ***support these efforts***

Proposed legislation needs inputs from Industry & subject matter experts!

Acronyms, Definitions

AT&L: Acquisition, Technology & Logistics; DoD undersecretary (OSD)

Base Metals (Common): Copper, Iron, Lead, Nickel

BU: Business Unit

CAER: Coalition of American Electronics (Industry Consortia)

CCA: Circuit Card Assembly

Common Metals: Aluminum, Tin, Steel, Brass

CPI/CI: Critical Program Information / Critical Information, Counter-Intelligence

Critical Minerals: Identified in legislation as elements critical to the technology Industrial base

CRR: Corporate Responsibility Report

CRT: Cathode Ray Tube

DHS: Department of Homeland Security

DLA: Defense Logistics Agency

DMS: Diminishing Manufacturing Supply (source)

DoD: Department of Defense (U.S.)

DoJ: Department of Justice (U.S.)

EOL: End Of Life (Product lifecycle mgt. term)

EHS / EHAS: Environmental Health And Safety

EPA: Environmental Protection Agency

e-Steward: Electronics Industry Certification , similar to RIOS R2, based on Basel Action Network Interests

ETMA: Engineering Technology & Mission Assurance

E-Waste: Electronics Waste, industry recycling term

FPGA: Field Programmable Gate Array

GAO: Government Accountability Office (U.S.)

H/W: Hardware

IAW: In Accordance With

IC: Integrated Circuit, complex electronic semiconductor component

IP: Intellectual Property, patented or trade secret body of work

IPR: Intellectual Property Rights Center (Government Agency)

ITAR: International Traffic in Arms Regulations

Legacy: Previous generation system (Military / Aerospace)

LRU: Lower Replaceable Unit

MDA: Missile Defense Agency

NDA: Non-Destructive Analysis

NDAA: National Defense Authorization Act, Implemented Annually

NHA: Next Higher Assembly

NIST: National Institute of Standards and Technology

OEM: Original Equipment Manufacturer (Systems)

OSD: Office of the Secretary of Defense (U.S.)

PII: Personally Identifiable Information (Identity theft term)

PPP: Program Protection Plan

Precious Metals: Gold, Silver, Platinum, Palladium

QMS: Quality Management System

R&D: Research & Development

R2: Electronics Recycling Standard. R2:2008 will be replaced by R2:2013 in CY 2015

Rare Earth Elements (REE): 17 Elements defined in the periodic table that are difficult to mine & separate

RERA: Responsible Electronics Recycling Act

RIOS: Recycling Industry Operating Standard (Certification)

SME: Subject Matter Expert

TBA: To Be Announced

Abstract

Legislation titled "Responsible Electronics Recycling Act" (RERA) was initially proposed in June 2011 in the House and Senate under HR2284 / S.1270. Primary concerns at that time were off shore pollution & International Labor / safety issues, raised by the World Health Organization and other agencies. Though introduced, it was not enacted. The bill was revised to address a number of issues and re-introduced in 2013 under HR2791 / S.2090 respectively.

The bill has been referred to committee in both the House & Senate, this has gained support by both parties. As a result, a hearing took place on July 8th, 2014 with the senate committee which included a panel of industry electronics experts. Additional industry support is provided by the Coalition of American Electronics Recycling (CAER), which represents certified domestic E-Waste recyclers.

There are a multitude of issues this legislation will attempt to address including eliminating a source of high value electronics for the purpose of counterfeiting, Issues related to Identity theft, US national security (inadvertent loss / export of sensitive or ITAR restricted data). Direct or collateral information can be extracted from data bearing devices, other issues include IP theft, technology matriculation, toxic material disposal, human rights violations & the loss of valuable domestic & imported precious & rare earth metal source streams.

In this presentation, we will review aspects of the legislation and it's potential impact on the recycling industry infrastructure. We will look at services certified domestic recyclers offer & review research on how precious & rare earth metals, crucial to the electronics industry could potentially be re-captured from down stream E-waste, providing domestic sources of these valuable elements.