

WEPSI Multi-Stakeholder Meeting #4
Wednesday, February 6, 2002
9:30 a.m. – 4:15 p.m.
Seattle, Washington

Participants:

Jennifer Allen, Oregon Economic Community Development Dept.
Shirli Axelrod, City of Seattle
Mark Bracking, PC Salvage
Vicki Bushnell, Kitsap County Solid Waste Div.
Leslie Byster, Silicon Valley Toxics Coalition
Larry Chalfan, Zero Waste Alliance
Mark Dabek, RE PC
Cate Gable, Global Futures Foundation / Meeting Facilitator
Eun-Sook Goidel, NW Pollution Prevention Resource Center
Patricia Jatczak, WA DOE
Barbara Johnson, Design Resource Institute
John Katz, EPA Region 9
Dennis Kitch, Portland, OR
Clare Lindsay, EPA Headquarters
Craig Lorch, Total Reclaim/EcoLights NW
George Lundberg, Epson Portland
Frank Marella, Sharp Microelectronics Corp.

Oso, Free Geek
Betty Patton, Environmental Practices, LLC / WEPSI Project Team
Ted Reichelt, Intel Oregon
Wayne Rifer, WEPSI Project Manager
Susan St. Germain, State of Washington
Vicky Salazar, EPA Region 10
Tanya Schaefer, Recycling Advocates
Lisa Sepanski, King County
Mark Sharp, Panasonic
Bill Smith, City of Tacoma Solid Waste Management
Doug Smith, Sony
Ted Smith, Silicon Valley Toxics Coalition
David Stitzhal, Northwest Product Stewardship Council
Lori Stole, WEPSI Project Team / Recycling Advocates
Indigo Teiwes-Cain, Portfolio 21
Lee Voinea, Western Technologies Group
Sarah Westervelt, Seattle, WA
Jan Whitworth, OR DEQ

1. Welcome and Objectives

NEPSI update: Clare Lindsay began by saying that NEPSI just completed the third of six scheduled meetings. Future meetings will be held in March in Washington, DC, in June in Minneapolis, and in September in Seattle. The sixth meeting is the end of what they agreed to do as a group, and they will assess whether there is a need for more meetings. The primary focus of the January meeting was to narrow down the financing options, but they did not quite get there. Despite this, they probably had the most in-depth, probing and educational discussions to date between the various stakeholder groups about goals and concerns. They are not far off from coming to a significant narrowing of financing, and then they will discuss implementation issues. There also was a very interesting design workshop – numerous companies gave very impressive presentations, and it was quite obvious that they are taking the issue very seriously. At least one company has attached personnel performance standards to environmental performance.

They also talked about the metrics of success in an attempt to delve into the issues of goals and targets, but this issue will be deferred to future meetings.

There was an interesting discussion between local and state government and industry about trying to understand the role of local government in a national system. What financial and logistical assistance would local governments need in order to contribute to it? Another discussion centered around the size of any proposed consumer fee. It is difficult for industry to agree to a consumer fee if they don't know how big it would be.

Wayne Rifer described NEPSI's infrastructure subgroup, which is looking at how the collection system will be set up. They now are defining a base level of service that would be delivered around the country. This base level of service is what would be financed. He asked those who are in the business to weigh in through him or their NEPSI representative.

A subgroup focusing on system cost will determine what that base level of service will cost. There is a simulation model being built in the Mid-Atlantic States by Polymer Alliance Zone. The model gives the ability to play out

different scenarios. It's a business planning oriented model. They are willing to bring this model out here the day before or the day after the March WEPSI meeting, and they need input from local governments and recyclers. We can provide input to improve the model and the model could be a resource for us. Those who are interested in participating in the demonstration should contact Wayne.

Ted Smith added that NEPSI was hoping to narrow down finance options, and back-end and front-end financing are still on the table. Some people are wondering if we can do this as a voluntary system without any back-up legislation. State legislators in California are moving forward with an electronics scrap bill; they are not going to wait for the NEPSI process.

Frank Marella noted that there wasn't enough time to complete analysis on all financial options. Industry needs more information before management can make a decision on this issue.

2. Check-In: Reuse/Recycling (Betty Patton) and Policy/Regulations (Lori Stole) Subgroups

Both groups have been studying problems intensively and realized that they were overlapping in research and information areas needed to answer their problems.

The reuse/recycling subgroup's original goal is "no waste before its time," but after months of discussion they have adjusted their goal to accommodate recycling of sometimes perfectly good material.

Recycling: CRTs are a material and problem focus. The CRT recycling problem involves not only material handling, leaded glass issues, and regulations, but also regulated recycling markets and the whole problem with the market for CRTs. The last CRTs will not have an end market as flat panel screens are gaining market share and will replace them. Establishing new markets to handle leaded glass will be difficult. They are pursuing questions about Asian markets because the Pacific Northwest is well-suited for those markets, but they need better documentation. Anyone with access to this information or persons with this information should contact Betty.

In North America there are a handful of glass-to-glass recyclers. We want to keep closed loop recycling available as much as possible, but these opportunities are in Midwest and the Northeast. The answer to that may be developing new markets in the Pacific Northwest. This is the area that the information that we need overlaps with the policy and regulations subgroup. What is the capacity of the market right now? Can it handle an increased national or international volume of material? EIA has some good reports on the few glass-to-glass recyclers. What percentage of the available material is actually being recycled? New color-CRTs are increasingly Asian-made.

These subgroups (reuse/recycling and policy/regulations) will work together on the following project, which will achieve a solution to problem statements identified by each subgroup.

Project: Reuse/Recycling Infrastructure Baseline and Evaluation.

Product:

- A baseline information document, on existing reuse/recycling infrastructure
- Analysis of the identified business types for viability, effectiveness and need
- An action plan for expanding the infrastructure in the Northwest.

This product will allow us to:

- Make recommendations for how much and what kind of infrastructure development is needed to handle the e-waste stream in the Northwest.
- Ensure that small business opportunities are not overlooked.
- Ensure that reuse options (supporting reduce-reuse-recycle hierarchy) will not be overlooked.
- Help define a local market for leaded CRT glass

Tasks to Implement:

1. Business inventory (try EIA, E-Scrap News, companies not based in but operate here):
 - Assess existing inventory lists of Northwest (OR, WA, AK, ID) and California businesses, that in any way reuse/recycle computer hardware or TVs.
 - Fill gaps if there are any. Include key businesses not in the region that seem to offer a useful model.
2. Profiles of these businesses:
 - Evaluate data from previous surveys.
 - Identify and collect any additional information that's needed, in order to understand the various types of reuse/recycling operations.
3. Assess end product markets in the Northwest.
 - Determine what the current end-markets are for plastics, metals, circuit boards and wiring. (policy and regulations subgroup).
 - Study existing North American and Asian CRT glass markets and assess the capacity and the future of these markets (recycling subgroup).
3. Business model analysis:
 - Assess all the above information to determine which business models seem most viable and needed
 - Make suggestions for replicating those models in our region.

Project: Environmentally Sound Recycling Criteria (Policy/Regulations subgroup)

Product:

- A list of criteria that an environmentally sound recycling policy for electronics should consider
- An action plan to research any issues, upon which multi-stakeholder consensus could not be reached.

How this product can be used:

These criteria would serve as a tool that could be used in several different ways, including:

- a standard to use in evaluating certification procedures for electronics recycling facilities
- a guideline for recycling facilities to use in optimizing their own operations
- a recognized Guideline for recyclers to sign on to
- An information source and guideline for communities, that are selecting recycling services
- An educational tool for consumers

Tasks to implement:

1. Develop basic framework of the issues that need to be addressed with the criteria.
2. Determine which issues need stakeholder discussion to reach consensus, and what information is necessary to facilitate that discussion.
3. Facilitate multi-stakeholder discussion and agreement process, if possible during the remaining WEPSI multi-stakeholder meetings.
4. Issue document containing the final criteria, along with an action plan for achieving multi-stakeholder agreement if consensus was not reached on some issues.

Project: Regulations Survey (Policy/Regulations Subgroup)

Product:

- A summary of the following types of regulations within our 4-state Northwest region:
 - CRT management
 - Reporting requirements for electronics reuse/recycle operations

This would include federal and state regulations and to the extent possible, regulations from local jurisdictions.

- Inconsistencies in regulatory approach within our region would be identified.

How this product can be used:

Allows us to recognize and address inconsistencies in approaches, where they cause problems for a successful regional reuse and recycling system.

Tasks to Implement:

1. Complete the regulatory survey.
2. Identify inconsistencies.

Project: Reuse Business Model (Reuse/Recycling Subgroup)

Reuse: Oso (Free Geek) and Greg Sampson (StRUT) are putting together a basic business plan for a community technology center that serves as a collection point for electronics, refurbishes them, provides education, training and job skills, and passes along sorted material to the recycling industry. The recycling industry benefits from receiving sorted material and taking some of the labor costs out of recycling operations. The technology center would use labor as an educational tool to teach people how to work on and with computers. The business model assumes an infusion of start-up capital, additional funding for the first three years and self-sufficiency at the end of three years. A participant commented that they should adapt the business model to different situations, such as different population densities.

Q&A:

Where are you getting the environmental criteria from? They will pull in all the issues that they can identify. They will work with existing material handlers and regulators to see what the parts of the problem are and where they need to focus.

It was suggested that the groups analyze the increasing use of prison labor and export.

There are some provisions that are fairly common in contracting that states or companies use for selecting vendors that address some of the kinds of things considered to be environmentally sound criteria, and we talked about producing a draft that would stimulate some discussion.

The subgroups intend to adhere to the garbage hierarchy of reduce, reuse and recycling – last week some Mac users files a lawsuit against Apple because they were promised that their old software would run just fine on their new hardware, but it didn't. This is a group of people who, realistically or unrealistically, are asking not to have to buy new hardware.

Cate Gable commented that the subgroup leaders have realized that the topics that we are unearthing are beginning to coalesce so it may well be that the subgroup categories evaporate and we may organize around these content and strategic action areas.

3. Status Report: Design Subgroup (David Stitzhal and Cate Gable)

The subgroup has good, broad representation from business, government, and environmental groups. When the group first met, they fairly rapidly came to a loose consensus that they wanted to focus on the feedback loop from reusers/recyclers to OEMs. This seemed like a good place to focus energies as opposed to upstream, new product design issues. There also is an important feedback loop from consumers to OEMs, however, their discussion has focused on the design for recycling component. They are looking at post-consumer products and the NEPSI products, and have focused more on disassembly and less so on toxicity. A new theme has emerged of a feedback loop among recyclers and reusers themselves, e.g, best practices.

Since the subgroups were formed, each went off on its own and tried to identify the most useful thing to look at, and what would further the WEPSI dialogue. Interestingly, several of the issues being raised by each group are converging. This is an indication we are mutually validating our undertakings and tackling the most important issues first, not simply duplicating efforts.

There appear to be three problem areas from the perspective of DfEnd-of-life:

- disassembly issues (including the separation of materials)
- materials handling
- end-markets for materials (chips and boards could be where the money comes from)

The second and third problem categories-materials-can be broken down further to include the following:

- boards – metals market
- chips – precious metals, secondary-use market
- component housing – plastics
- TVs – wood and pressboard
- CRTs or tubes – glass

Within this materials category, the most problematic component is the CRT and CRT glass, which is, in older computers, heavily leaded. Since the CRT has been designated a hazardous waste, special handling issues comes into play here as well.

Problem Area #1: Disassembly There is no formalized feedback loop from recyclers to OEMs. And, therefore, no current incentive for recyclers to collect DfE and DfR data. Further there is no incentive for OEMs to respond to DfEOL information in order to make computers easier to handle at end-of-life or produce them with fewer toxic materials.

Our SWOT analysis, led to Solution Option #1: Design a feedback loop process or system from Recyclers to OEMs that provides incentives both-

- for Recyclers to provide OEMs feedback on DfEOL (on the assumption that this would provide internal business processing efficiencies that would affect recyclers' bottomline)
- and for OEMs to make computers easier to recycle and less toxic (the assumption being that OEMs must see bottomline benefit for making these DfEOL changes).

We're trying to design the future based on the past. We will need to deal with where our cut off point is for feedback when we come up with these recommendations. We need to make sure the feedback loop is not a disconnected one. Products being designed today are much different than those designed two years ago.

Comments:

Feedback is one thing but how are you incorporating an incentive to act? What could that incentive be? It could be increased efficiencies for recycler if design changes. What would increase the chances that information from recyclers would change what OEMs do?

DfEOL definitely includes reuse, so we also need to think about feedback from the reuse community – disassemblers and refurbishers. That whole stream is your revenue stream, and if you can get the feedback from the people who are handling that whole stream so that one additional percent can be refurbished, or an additional amount can be recycled, you improve the process.

One of the things that we struggled with is the fact that the material coming in is so old. It seems to be that the design for reuse would involve the more modern equipment, so refurbishers may be the more valuable and current source of information.

We need to include reuse and recycling, but they may need to be handled quite differently.

The reuse focus is on a smaller section than the CRT issue, clearly on the computer issue.

Problem Area #2: Materials

It's not clear to us whether the design group should pursue this issue or if another subgroup should handle it.

Problem Statement #2: Cathode Ray Tubes from monitors and televisions are a remanufacture and disposal problem for the Pacific Northwest. There are no CRT glass-to-glass recycling facilities or secondary smelters located in the Pacific Northwest. Transportation of CRTs to domestic facilities outside of our region is expensive. There are opportunities for selling useable CRTs overseas, but it is not known if these options are environmentally sound. CRT glass in older computers is heavily leaded (which limits end markets for the reuse of glass). Since the CRT has been designated a hazardous waste, special handling issues come into play here as well.

Our SWOT analysis led to two solution options:

Solution Option #2A: Explore the construction of a CRT glass recycling facility in the Pacific Northwest (with cullet shipped to the East Coast for remanufacturing).

Solution Option #2B: Research possible Pacific Northwest end uses for recycled CRT glass cullet. [These action items are also being explored by the Reuse and Recycling Subgroup.]

Comments:

Participant is puzzled as to why the cullet would necessarily go to the Eastern U.S. This seems to presuppose something. We could look at any other remanufacturing opportunity. It seems worth mentioning environmentally sound requirements in the solution options.

If you did process the cullet here, there is no reason why we shouldn't be able to ship it across the ocean. The EIA reported that U.S. glass plants produce less than 500,000 tons of CRT glass per year, and we import more than that. We're only making half of what we're consuming.

Five years from now, that market for CRT glass may be diminished world-wide so it seems that we need to be looking at other high value uses for leaded glass or the lead itself.

Most of the CRT glass being made now is lead-free (the panel glass), so we need to explore other markets.

The industry is aware of what has been said, and Sharp has been working with the New Jersey Institute of Technology to develop alternative uses for leaded glass, e.g., replacing where lead is used with versions of this leaded glass.

This raises the temporal issue once again. To the extent that the market is driving towards flat screen we have different design and resource issues. Design is already moving beyond the CRT altogether.

It seems as if we could be clearer that high-end recycling isn't stuck on putting the glass back into CRTs; there are glass specifications that we should be more knowledgeable about, e.g., optics.

Product stewardship demands a broad view of stakeholders.

Japan initiated mandatory recycling of CRTs in April of 2001. We know a little bit about the structure from the NEPSI process. Japan's front-end collection is funded by the last user, and manufacturers are required by law to be responsible for the recycling of their projects. We know little about the results. Right now the leaded glass is going back into CRTs.

The temporal issue is real with CRTs in monitors, but televisions are a much bigger issue.

Another temporal issue: California is now conducting TCLP tests on a number of other kinds of components, e.g., circuit boards. They likely will be deemed hazardous waste. By narrowing the focus to end of life, you lose some of the toxicity issues such as brominated flame retardants on plastics. We need to be able to reward the overall system to encourage development in direction of lead-free, mercury-free, etc., rather than simply refining lead recycling.

The group purposely stepped back from issues on the manufacturing side, in an effort to find an area of common ground. They have been looking at non-functional aspects of material design; disassembly issues in terms of design are in a different category.

Problem Statement #3: There are insufficient end uses for recycled plastic. Additionally, multiple resin types complicate recycling and remanufacturing processes.

Our SWOT analysis led to Solution Option #3: Create a standardized OEM barcoding system (for computer and CRT housings) that identifies resin types and includes other information of use to recyclers.

Comments:

Great to look at issue of thermoplastics, there is an ongoing (three years) dialogue centered at Tufts.

4. Design Expert Panel

One of the WEPSI objectives is to provide for continuing education to and feedback from the whole group, and there is a tremendous group to speak to us today.

Frank Marella (Sharp): Incorporating Environmental Concepts into Product Design

Sharp was established in 1912, and its headquarters is in Osaka, Japan.

Three major requirements feed into product design:

1. Functional (circuitry layout, components, weight/size, shielding, material/part availability, user friendly, repairability)
2. Legal (flammability, reliability, FDA/FCC, military/other government)
3. Other requirements (environmental attributes: energy efficiency, preferred materials, recyclable materials, disassembly, recycled content; aesthetics, manufacturability)

Sometimes the requirements conflict, e.g., legal and environmental requirements conflict around the need for flame retardants; functional and environmental requirements conflict around the need for the LCD backlight; and aesthetics and environmental requirements conflict in a “powersaver” TV.

Sometimes the requirements coordinate, e.g., functional and environmental requirements combine to produce miniaturization, material standardization, and consolidation/convergence (copier/fax/printer).

Implementation is not a sequential process. There are tradeoffs and hierarchies. Companies use Environmental Management Systems (EMS) and internal design guides. EMS is an increasingly standard corporate procedure that requires consideration of environmental attributes in the design process, but it does not mandate incorporation of environmental attributes into production.

Sharp Green Product Design Guide: Their guide includes all regulatory requirements, sets goals and schedules, outlines a process, and identifies seven specific areas: energy use, materials, safety, separation and disassembly, batteries, extension of service life (ability to upgrade), and packaging materials. Their process incorporates applicable environmental policies into long-term planning. They set goals in those areas, design products incorporating the goals, evaluate product, and introduce into market.

Once a topic/category is identified (disassembly is one of them), they determine its applicability (products, locations), establish targets and goals (e.g., eliminate lead circuit boards in microwave ovens), establish criteria and create guidance documents. Examples include: energy: 1-watt stand-by energy, “powersaver” TV;

Material: minimize use of lead, PVCs, brominated flame retardants, cadmium; standardized plastics; Disassembly (the easier to disassemble the easier and cheaper to manufacture); reduction in number of screws, standardize connectors, incorporate new technology to ease disassembly. In other areas they have reduced the use of foam in packaging materials, and designed appropriate products to be upgradeable.

Specific examples of DfE are introducing “memory alloy” interconnects to ease disassembly, introducing lead-free solder, moving from CRT to LCD technology, reducing plastic types by 50% and number of parts by 30% in televisions, reducing VCR weight by 27%, eliminating the use of lead-acid batteries, and meeting or exceeding Energy Star standards in applicable products.

DfE is always considered but must be balanced against other design criteria and cost, and it will play a larger role in the future.

Q&A: Do you develop different products for different locations? Lead-free is going worldwide. Different regulations in different locations can affect a design’s applicability, e.g., it is easier to stop using brominated plastic flame retardant in Europe because their flammability standards are less than the U.S.’s.

Mark Sharp (Panasonic): Design for Environment at Matsushita/Panasonic, Product Assessment Process Objectives: Assess environmental impact of products during their lifecycles and during the planning/design and developmental stages. Matsushita wants to develop products that will lead the industry with respect to environmental friendliness.

They began qualitatively analyzing their products in 1991, and have added several layers to their DfE system. Most recently they developed a green procurement policy regarding chemicals. In FY 1999, they analyzed 2530 models, and the number likely has increased by 50% since then.

Implementation: They assess the environmental impact of products during the planning, design and developmental stages. They set targets and carry out assessment on two or more stages during development. Their Green Product standard is always above any mandatory standard.

Items Assessed: products, manufacturing process, packaging, operation manuals, look for things such as energy conservation, control use of various chemicals, three R’s, sortability, minimize volume and mass, long life usage, upgradeability.

Support Systems: done at internal level, then shared among all business units, and that’s what goes into the final design process.

New designs start in Japan and when they are tested in the marketplace, they are rolled out corporate-wide and marketed globally.

Recycling Systems for Used Products:

Japan has a decentralized recycling system for used home appliances ((TVs, refrigerators, air conditioners, etc.), so they could restructure existing recycling systems and use designated collection sites, recycling sites and other existing businesses. They constructed flexible management systems that cover all areas of recycling from collection to recycling processes. This is essential to minimize recycling expenses.

Matsushita Ecological Technology Center was established in April, 2000. Matsushita formed a third-party subsidiary, Ecology Net Co., Ltd., that manages recycling related operations for 19 manufacturers, and cooperates with 24 recycling centers and 190 designated collection points throughout Japan. It recycles scrapped materials into new products. They have an extensive in-house database. For more information, visit www.matsushita.co.jp/environment/2001e/index.html

Q&A:

Japanese law has heavy recycling requirements and reporting – how heavy of a driver has that been on this program? The recycling target rate for TVs is 55%, but it's only been in place for 10 months. They're still fine-tuning it. He is not aware of what the main drivers are to meet that rate.

How does Matsushita get to that equation? Survey? Database? He thinks it's a database sharing arrangement, but is not sure.

Is it product-by-product or generalized information? It's disseminated on an as-needed basis.

He doesn't know what the next step in their DfE system will be.

This type of work drives the supply chain for companies like Intel that supply to Sharp, Panasonic, Sony, etc. It creates a ripple effect.

While we are talking about environmental responsibility, how does the WTO fit into this? And do we have any input into it? It's a critical issue, especially for developing nations.

The legislation from Europe and Japan is pushing a global standard. Some of the U.S. trade associations have opposed and lobbied against those things, using the WTO. A materials requirement can become a trade barrier.

Mark Dabek (RE PC): RE PC is a market recycler of computers and computer peripherals. They sell computers, monitors, some new parts, printers, and peripherals. They sell to a lot of IT people who need specific items that they can't find other places (they purchase the OS to put on the machines). They are not involved with software. They get materials from businesses, government agencies, and other sources.

RE PC deals with disassembly issues first-hand. One of the biggest problems Dabek sees is computer equipment from the large manufacturers. They are difficult to take apart and there isn't much reusable stuff. He calls this "design elitism." Seventy-five percent of what they receive is not branded computers, but clones. From a disassembly perspective, clones are the easiest to deal with, and they are easily reused because they have mix and match parts. RE PC does not make a profit on its recycling. They do it as a service because it helps generate customer flow, and they want to recycle. They are able to do it because they couple it with their resale business. Computer manufacturers don't make it easy to get rid of their data. They wipe the hard drive clean and reformat it before refurbishing it. They are starting to see a lot more of the laptops and LCDs. (The EPA will be coming out with a life cycle analysis soon).

Craig Lorch (Total Reclaim/EcoLights NW): He is a Seattle recycler of computers, CRTs, and lamps. They mostly deal with material that's over five years old. OEMs don't want to know about what's inside a five-year old machine, and it's difficult to find out what's in the machine (especially regarding toxicity) from the manufacturers. Finding out where the hazards lie is important, e.g., microwaves – PCB ballasts were used until 1980 and later for imported microwaves, but manufacturers won't disclose what is in there from past years. It would be helpful to have manufacturer advisories. Total Reclaim is reliant on front-end fees, and they charge for everything that is brought in.

Exports and globalization: The more he learns, the less comfortable he is. He would like to keep material domestic. This is not a clean business. When we run out of CRT capacity in this country, the next option is lead smelters, but they aren't good neighbors. Perhaps there is a role for exporting materials if we can accredit the accepting facilities. If the material isn't managed properly, the people handling it will suffer. The manufacturers are doing their best to create products that will tickle our fancy and be environmentally responsible, but we have to keep in mind that they are in business to sell products.

The December 2001 issue of Consumer Reports rated computers, monitors and televisions, but did not include any information based on environmental characteristics.

Q&A:

A participant thought that the publishers of CR would be open to this including environmental ratings.

There is a fundamental difference between U.S. and Europe – the magazines in Europe are what drive people to buy things, they don't have superstores. Their magazines include environmental ratings.

During the course of the first International Design Competition in 1994, some companies told them that consumers consider recycled to be inferior, consumers want perfection, etc. Thus, some companies use a lot of recycled material but don't put it in their ad copy (furniture).

The temporal issue can be somewhat of a red herring – when something new gets invented, the thing to take it apart, or the processes to deal with it, should be invented. Just because they're not making it anymore doesn't absolve them of the responsibility to deal with it.

The manufacturer gets the brilliant idea that they will make a proprietary hardware system, and they are the only ones who sell upgrade parts. None of these systems have lasted, so market forces have driven them away from this idea but it still pops up.

Barbara Johnson (Design Resource Institute): She is Project Director at DRI; they have been holding an International Design Competition since 1994 focusing on sustainable design issues. The Institute intends to get things out on the table to demonstrate new technology. The ultimate goal is zero waste, but right now we have a waste stream. They now have 450 items in their collection. The next phase is targeting the redesign of certain products and making sure they get into production.

IBM is recycling plastic housings (IBM to IBM) into new computer housings. Phillips Electronics made a CD player from old CDs. Phillips makes both CDs and CD players. There is a chair made out of old computers in Australia, and they use other kinds of consumer appliance housings – ABS thermoplastic. She brought a prototype of a biodegradable keyboard made from carrot and celery pulp from a juice bar. With grant funding from Sustainable Northwest they created design sample kits to give designers who enter the competition. Sustainable Northwest included small diameter wood in the kit to find a market for it. Visit www.designresource.org for more information.

5. Status Report: Market Drivers Subgroup (Wayne Rifer)

The subgroup took on the challenge of defining incentive mechanisms that will advance electronics product stewardship with an emphasis on market mechanisms over mandates. They started with a large market drivers mission, and narrowed their focus to a core project of examining the feasibility of an electronic product DfE rating system.

What's out there?

Eco-Labels: TCO '99, Energy Star. Many have very good DfE standards, but are not focused on EOL, and most are prescriptive. Ours will be outcome oriented rather than prescriptive.

Studies/Reports, ECMA, EIA, AEA. Good information on EOL management, but don't provide rating capability. Other fields – LEED. Good approach, good institutional structure, but does not address electronics.

Desired Attributes of a DfE rating system: simple and clear, outcome oriented and performance-based, transparent, involves multi-stakeholders, harmonized globally, encourages innovation, no delay of product to market, low cost to applicant, and protects proprietary information.

Illustrative Guidelines for an Electronic Product DfE Rating System [insert link here]: Format is modeled on the LEED system.

Questions to Answer:

1. Are we on the right track?

2. What would be an appropriate parent organization?
3. What should we do next?

6. Market Drivers Expert Panel

Rob Watson (Natural Resources Defense Council): NRDC, a nonprofit formed in 1970, is involved in all manner of environmental issues. Watson is a Senior Scientist and has worked there since 1985. In 1993 he got NRDC involved with the U.S. Green Building Council. They looked at how to transform the building market in the U.S. by identifying superior buildings in the market. LEED stands for Leadership in Energy and Environmental Design. They are looking at adopting a number of product stewardship issues in the various five areas of LEED when taking it to the next level. For more information, visit www.leadbuilding.org.

He would urge whoever the parent organization is in a rating system to involve a broad base of stakeholders. This is one of the critical ways LEED was successful. When it hit the market, it already had a lot of credibility. It is not the deepest, darkest green, but it isn't light green either. The development of the technical rating criteria is only the first step. It took six years to get to the marketplace.

How do you establish rating criteria? You can create your own, or adopt or integrate standards that other people have developed. LEED chose the latter route because they felt it was important to have the credibility of vetted standards associated with the product. They created value by benchmarking the established standards and requiring going above those standards to be "green." Thus, naysayers couldn't attack the substance of the rating system, they could only attack the process.

Another fundamental issue is to determine what you are rating. You can either rate a product or a process. Whichever one you choose, the structure of how you deliver that label will look very different. Product labels are easier than process labels. Rating a process means you have to figure out how to verify the maintenance of the process you certified in the first place. He recommends going for the easy big hit first: product.

Good attributes for criteria for a label:

1. clear
2. concise, said well
3. what people asked to do/show is, in fact, doable or showable (LEED is self-documenting, but not self-certifying, USGBC certifies)
4. can be documented
5. to the extent that umbrella organization is going to be evaluating criteria, criteria must be verifiable
6. objective, two people looking at the same thing would come to the same conclusion
7. performance-oriented

Contact Watson at rwatson@nrdc.org. He suggests contacting Debra Dunning at the International Design Center for the Environment as they are exploring a label for interior finish products.

Q&A:

What is the LEED certification process? First, the building project registers. We require this for two reasons. Selfishly, we wanted to be able to show other people that people were signing up for LEED – success breeds success. Unselfishly, the registration process involves paying some money and it's also a public statement of intent. On some level this publicly commits a building to following through with the process. Second, is the technical hand-holding phase. A lot of the criteria are complex and can be subject to interpretation. LEED gives applicants two free questions, and then charges to answer additional questions. When the building is complete, they submit an application. Applications range from 3 to 17 inches thick. They are trying to streamline application requirements. When the building is certified, USGBC does press releases, gives the building a plaque, certificate, etc. After five years, we hope the building will re-certify under the LEED existing building rating system.

What is the registration fee? Who pays it? Right now, it's a flat fee of \$350 (USGBC member)/\$500 non-member. They are changing it to .02/sq. ft. (member) or .025/sq. ft. (non-member) with a maximum/minimum fee.

How do you market the program? The amazing thing is that we've done almost zero marketing, probably 90% has been through word of mouth. We generate free publicity with each project. During the development of the criteria we distributed drafts, and a lot of members used it informally for a long time. They reported back, and it generated a fair amount of buzz within various industry segments. We are just hanging on by the barest of our fingernails to keep up with the projects. Simultaneously, we are creating new products in vertical markets. They do informal marketing at professional conferences but don't have a marketing campaign.

How do the LEED certified buildings use this system? What is it doing for them? It really varies. Some people do it for external PR reasons, others for internal PR reasons. Some people are reluctant to release a lot of information about how they met LEED because they consider it a competitive advantage. LEED has heard anecdotal stories of 6-11% increased efficiency in productivity which is major when you consider that 80% of a building's cost over its life span is the salaries of people inside. Some people do it for mercenary reasons, some people really want to be green, some want both.

Portfolio 21 is now in the Natural Capital Center, an EcoTrust project to promote the conservation economy and to serve as an educational tool. They have droves of people through the building every day such as school and business groups. Their business benefits from this walk-through traffic.

Are there differences between a whole building and consumables? Energy Star as a label is referenced in LEED. The same thing could be possible with a label if you convince a government agency to use it. Energy Star went after the big procurement programs. That is how you start getting a label noticed. It does not take many big users putting this stuff in their RFPs to get the market to take notice.

Maureen McNamara (EPA Energy Star): She noted that she cannot discuss any future mergers of Energy Star.

Recognition of our label is in the 40% range, and is higher in areas of the country where there has been regional marketing, up to the mid-50% range. This is compared to the Good Housekeeping Seal with 95% recognition, 60 positive feelings, and the recycling symbol with [anyone happen to write this down? It's not in her slideshow].

Why Energy Star? Left unchecked, each year, energy consumption will increase 1.2%, carbon emissions will grow 1.4%, and electric demand will rise 1.8% (National Energy Plan). Yet, slowing demand growth by just 0.3% would reduce new generation needs by 2,000 MW next year, eliminating the need to build 200 power plants over the next 20 years (National Energy Plan).

Consumers and businesses want to help: 73% of the public report buying environmentally beneficial products (Gallup 2000). 86% believe individual action and 69% think voluntary industry action can help tackle environmental problems (SWR Worldwide 2000). But, they lack objective information about energy efficiency/environmental performance, and are bombarded by 3,000 marketing messages a day (may have grown by 10-fold since this survey). AOL spend \$250 per person to get a new customer – it expensive to get people's time and attention through traditional methods

Energy Star's voluntary specifications are backed by the U.S. government; Energy Star's unique marketing paradigm cuts through the clutter – provides a clear path for consumers and businesses to do the right thing; Energy Star reduces time-to-market and expense of developing an independent energy efficiency program or campaign.

Energy Star is a strategy for market change; a credible and increasingly recognized symbol for energy efficiency; a voluntary network of government/business/community partners; and a trademarked label that identifies energy performing products, homes, buildings and consumer financing (30 product categories). Different products are sold through different markets – this can impact whether product is labeled or not.

Energy Star Strategy: Work with markets: identify barriers, develop tools & strategies to overcome them; Develop specifications with industry and other partners to ensure buy in; Create a single banner to wave – the label, ensure its value in the marketplace; and Influence more than single transactions to create lasting market change. When they choose a product, they generally look at the top 20% of energy performance – not the top of the heap. This allows more than one partner to qualify so they can deliver on the promise. By working with whole markets, you leverage more than one transaction.

Energy Star Trademark: Energy Star can use self-certification because use of the trademark is backed by federal trademark law. Trademark law is the teeth, and producers police each other. The label is recognized by 40% of U.S. households (higher in areas with REPS promotions) and is easily interpreted by consumers. It understood by 50% of householders including those seeing it for the first time.

Energy Star Network: It is like a giant multi-level marketing campaign with more than 150 REPS serving nearly 50% of US households, more than 11,000 storefronts in 50 states, more than 1,600 manufacturers in 30+ product categories (11,000 models), 4,400 commercial buildings partners and Energy Service Providers (13% of building market), and international partners: Canada, EU, Japan, Taiwan, Australia and New Zealand.

Energy Star Coverage: It covers more than 30 residential and commercial product categories; high performing offices, schools and homes; new homes; consumer financing and mortgages; recent products added include ceiling fans and commercial solid door refrigerators; coming soon: additional building space types and product categories. Already 600 million Energy Star products have been sold, saving consumers \$3 billion annually and offsetting 5GW of peak power.

Timeline: 1992: EPA establishes Energy Star program; EPA launches first product specs for computers and monitors; 1993: Clinton issues Executive Order mandating that all government office equipment purchases meet Energy Star specs; 1995: EPA launches Energy Star for new homes, specs for residential heating the cooling equipment; 1996: EPA and DOE sign agreement to co-manage Energy Star, appliance programs launched, EPA/DOE launch national brand awareness campaign targeting consumers; 1998: ES introduces specs for TVs, VCRs, windows, Energy Star label for buildings is launched; 1999: more program expansion, Sears and Home Depot sign on as Energy Star partners, the building label is available to more building types; 2000: First nationally coordinated Energy Star promotion (Great Lighting Change-Out).

There were no preexisting specs for computers and monitors in the early days; later on for other products there were. They always look at existing standards. To make sure the specifications remain valid over time, they build in a Tier 2 level when new specs are introduced.

What Energy Star Offers: specification development and revision, extensive coordination, PR and marketing, marketing tools and strategies (e.g., software, store locators), fulfillment (web and hotline).

New Energy Star Campaign Goals: Unify Energy Star message; drive consumers and businesses to action; link energy, financial, and environmental performance in the eyes of corporate America; build on Energy Star foundation; and make an emotional connection.

Q&A:

Has the driver been institutional buyers? Yes, that's one product category. Many of the other product categories are not institutionally based, e.g., clothes washers. There are market differences in areas where promotion is occurring. There is about 60% market penetration in some electronic product categories of Energy Star.

How do you deal with technological advances in specific product categories? We always make our marker technology neutral – performance-based.

How do you push performance level? We have a revision cycle that's incorporated into all of our partnership agreements, e.g., solar is very energy efficient and environmentally preferable but we have to go forward in a technology-neutral way.

What are your perspectives on the success of Energy Star being tied to looking at specific criteria? Are there lessons to be learned when trying to focus on multiple aspects of products? We have stuck to energy, and WEPSI is more complex. She suggests looking at Green Seal because it looks at the life cycle of the product. Establishing a standard of x% recycled content may be more feasible than trying to go after every component of the computer. Energy Star does not want energy efficiency to come at the expense of other environmental damage, e.g., when developing standards for ice makers they discovered one manufacturer who wasted a lot of water but could be energy efficient.

Is it that simplicity and clarity of message that makes it recognizable? Yes. She has heard anecdotes that European manufacturers joined Energy Star because it was more widely recognized than other labels. She thinks simplicity is a big part of Energy Star's success.

Energy Star only certifies end products, not products used in manufacturing or manufacturing processes.

With Energy Star, the people who select the product usually also get the energy bill for the product they purchase. That money savings doesn't translate to other environmental factors. There is no individualized benefit to lead-free solder.

Before Energy Star got consumer awareness, it was changing the market. There are ways to influence or change the market without consumer awareness, but the appeal of money-saving is attractive – it's a win-win situation. WEPSI should explore other attributes that could have appeal.

For more information visit www.energystar.gov, or call toll-free 1-888-STAR-YES.

WEPSI Participant Feedback: Market Drivers Subgroup

How can we get a system of incentives for the best EOL system (Ted Reichelt and Indigo Teiwes-Cain)

Questions:

1. Are we on the right track?
2. What would be an appropriate parent organization?
3. What should we do next? Tying this rating system to an up front program, or to an EDP program or an eco-label?

Ted Reichelt: Industry wants maximum flexibility, but he thinks there is a pathway for some sort of mechanism that rewards performers. The EOL piece of product stewardship is evolving and he thinks there may be a chance to capture some of this and create some harmonization. The companies here are doing really good stuff and this is an opportunity to take credit for it. Depending on how NEPSI comes out, there could be some incentives to save enough to help finance recycling. The data and marketing research shows that consumers mostly haven't looked at eco-labels – we have potential to capture that market. How broad can you make this and have it work? We need to consider the metrics of the system. Any certification system needs to be more towards self-certification. The system must consider the product life cycle – if you're not careful you create criteria that lag behind products. The system must be flexible and have a reasonable cost, especially because 90% of the electronics industry is small companies.

Do you think the tool could be useful?

Comments:

- Have you looked at systems that would achieve the same goal without a rating system? ASTF has a new green building standard - a questionnaire to get information from manufacturers about the environmental aspects of the product. It still serves the purpose of sending a signal to the manufacturer. It's a big question mark if consumers will look at a label. Market research doesn't show that they will, but the research was conducted on short-life products such as pesticides; consumers may have more incentive for computers.

- Intel's drive to use Energy Star wasn't customer demand, but it was a simple, very clear program with some obvious marketing benefits to the institutional market. There was a sense that there was a win for industry in having their products registered with Energy Star on a voluntary basis. They're just now seeing the consumer demand.
- The rating system could be the least efficient route.
- Consumer awareness of the problem is there in a certain segment of the population. A labeling system that could spell out the environmental impact that allows consumers to make an informed choice would be a good thing.
- Design criteria – phase out of toxic materials is not included: group said they deliberately decided to leave it out. Toxicity is included in another document. The language on page three, “design strategy: harmful, toxic, or hazardous substances can be safely handled and disposed...” WEPSI should award points based on those products that don't have those kinds of materials at all, not just the safe disposal of toxics. The guiding principle should be prevention (reduction).
- Marketing concerns if can't dispose of a product when it's at EOL.
- Advantage to Energy Star is its simplicity. Beauty of LEED program is that it rewards all levels of attempt to get you where you want to go. You could sell the concept of this very well thought out set of criteria being environmentally healthy, e.g., 88 out of 100.
- It's going to be useful, but it is difficult to come up with the substance of rating system. Did you keep in mind other requirements that may trump the rating system? Yes, that's why we're choosing the LEED model, so a product can get zero in one area and score highly in another.
- There is an inherent problem when talk about EOL impacts when what we're really talking about is no waste, a constant cycle. EOL is a temporary term.
- There are many eco-labels in existence. Is the crucial difference here that ours would not be a pass/fail, but would have gradations of environmental preferability?

Some of subgroup's ideas for possible applications:

1. To structure a NEPSI front-end fee that pays for EOL management – the system could be used to change the level of that front-end fee.
 - in this scenario, an Energy Star product could get screwed (the system could allow for Energy Star incorporation)
2. To include EPP standards
 - either at one end of the spectrum (one simple issue or whole shebang)
 - raft of EPP standards floating around, Intel found 25 different EPP standards via an informal survey. EPP hits manufacturers pretty quickly and pretty hard, and there's some potential for some real chaos. This could be a vehicle for providing some harmonization or consistency around RFPs.
3. To be standards for an eco-label (e.g. “Recycle Star”)

Comments:

The group states that we should recycle products at the highest value – he doesn't think that should be included because no one can control the value of a commodity. Computers and consumer products are very different. Consumer electronics aren't designed for consumers to be able to open them up for safety reasons. We need simplicity. For example, it was recently proposed that changes be made to the Energy Guide labels on appliances, and they were talking about having ratings with various numbers of stars. Manufacturer surveys indicate that a single label is understood the best; a star ranking would be too confusing. Finally, scoring is inherently subjective. It serves a valuable purpose, but it's often misleading. For example, consumers don't know how the scores were arrived at unless they read pages of background information.

An alternative to a rating system could be a “list of ingredients” like FDA labeling. But, ingredients don't give enough information about hazards.

Must differentiate between what sort of consumer, and what sort of product.

What is your objective? It may be a little bit too broad.

There is a Consumer Union Report (2001) that analyzed consumer labeling that should be reviewed by this group.

There seem to be three different goals: to facilitate management of EOL products, to partner with NEPSI, and to educate consumers.

7. Next Steps

This is meeting numbers four of six for WEPSI. The goal is to start bringing everything back together for the fifth meeting, in order to provide an Action Plan for product stewardship for our region. The Action Plan will come out of the work of the subgroups, and additional issues which need to be included. By the next meeting, each of the subgroups will have finished their work or finished it enough to present it for “yes, no, and tinkering” by the whole group. At the sixth meeting, we will have enough to come back to the group with a document road map. We then hope to get enough feedback so that we can fill in the gaps and complete the Action Plan by the end of June.

The next meeting will be held on March 27 in Portland. The sixth and final meeting will be held on May 22 in Seattle.