

Front-end Financing (FEF) Scenarios for Collection/Recycling of Electronic Products

There are two primary methods of establishing Front-End Financing (FEF) and innumerable variations and hybrids. This document and the attached charts show the two primary scenarios and a hybrid system used in the Washington E-waste legislation. It will also address the problems with charging end of life fees at the time of recycling.

The scenarios are:

Advanced Recovery Fee (ARF). In an ARF system, a visible fee is collected from the consumer at the point of sale. This money is used to finance the collection and recycling system when products are recycled.

Extended Producer Responsibility (EPR) aka Cost Internalization (CI). In an EPR system, the cost of financing the collection and recycling system is incorporated into the cost of doing business or the product price by the manufacturer. There is no visible and separate fee collected by the retailer from the customer.

WA E-waste legislation (HB 2488) proposed Hybrid (WA Hybrid). The WA Hybrid system is a staged, dual system. Manufacturers slowly develop an EPR system where there is no charge to users at the time of recycling. As this program ramps up, a small ARF is collected at point of sale and goes into a government fund. The collection of the ARF sunsets in 5 years. Grants are provided to help develop infrastructure and offset costs of collecting and recycling materials not financed through the manufacturer EPR system.

These scenarios are addressed in more detail in the following pages. There is also information contrasting these scenarios with an End of Life fee system, which is considered by most governments and many other collectors to be a problematic system.

End of Life Fee (EOL). In an end of life fee system, a fee is collected at the point and time of recycling the obsolete product. The consumer makes the payment, to the collector or recycler for the cost of recycling the single unit.

Advanced Recovery Fee System (ARF)

This system is the proposed system resulting from the NEPSI negotiations. The proposed NEPSI system would use an ARF for a period of seven years. Afterward, the system would transition to a partial or full EPR system. Chart A shows how the NEPSI ARF system would work.

How it Works (NEPSI)

Administration

EPA appoints the Board of Directors of a multi-stakeholder, industry-dominated Third Party Organization (TPO). The TPO is responsible for the management of the national system, such as contracting for adequate services. The TPO contracts for recycling services by Processors, and provides within the contracted amount, a Collection Incentive Payment (CIP). The CIP will be paid to collectors via the Processors to reimburse for collection costs, encourage collection, and “buy in” products for recycling. Money is paid out of the Public Trust Account once approved by the TPO.

Manufacturers

The Manufacturers sell products to Retailers.

Retailers

Retailers collect a mandated ARF from customers using a visible, stand-alone fee. Retailers submit the ARF to a Public Trust Account.

Customers

Customers pay the ARF at the time of new product purchase. They can then use any basic collection service that is part of the NEPSI system at no charge. More expensive services, such as curbside collection, exceed in costs what the Collection Incentive Payment covers, and there may be additional collection charges.

Collectors

Retailers, Charities, Recyclers, Governments or Manufacturers themselves may provide collection services. Those that find it beneficial to do so, and affordable due to the Collection Incentive Payment, provide service voluntarily. Material that enters the NEPSI system through a NEPSI contracted Processor, will receive the Collection Incentive Payment paid from the Processor to the collector. Collectors have the freedom to salvage for resale or to direct material to other than NEPSI Processors, but do not receive the CIP for those materials.

Processors

Processors that contract with the TPO provide Environmentally Sound Management (ESM) and agree to pass through CIP to Collectors. Processors bill TPO for services.

TPO

Establishes ESM and export standards. Receives and approves billings from Processors. Establishes other services, promotion and coordination as necessary. Adjusts system and payments as needed to meet budget and performance requirements, including the level of collection necessary to serve Customers.

Pros:

- Removes need for end of life fee for most collectors.
- Fairly linear, simple system.
- Provides funding for orphan, historic and new material.
- Establishes minimum base level of service customers can expect.
- Easy to ascertain if fee is being collected by all sellers.
- Collection is voluntary.
- Allows charities and others to collect at no risk and benefit from resale.
- Minimum or no government bureaucracy created.
- Establishes ESM and export standards needed by and acceptable to “deep pocket” manufacturers and their customers and shareholders.

Cons:

- Manufacturers have virtually no responsibility, other than some will serve on Board of TPO.
- There is no market or other driver for manufacturers to improve design to minimize toxics or recycling costs. They are not engaged with finding efficiencies in system.
- Does not establish system that can be used for other products, unless each product is to carry a separate ARF, which seems unlikely and undesirable.
- Requires customer to pay visible ARF.
- Requires retailer to collect ARF, creating additional administrative costs.
- Fee not very adaptable or resilient to actual costs and savings to system.

Relevance

This approach is proposed by the NEPSI negotiations as a start-up system for seven years for cleaning out orphan and historic material. A related ARF approach that utilizes a government fund and bureaucracy was adopted in California. A smaller ARF and less bureaucratic approach is a component of the HB 2488 proposed hybrid system.

Generally, television manufacturers, as well as computer manufacturers with small current market share but much historic waste (such as IBM), prefer this approach. Some computer manufacturers that have high current market share, but little historic material, such as HP and Dell, oppose this approach. Generally, retailers don't like it because they have increased costs and administration due to collecting fee. Some governments prefer it due to the confidence it provides for infrastructure funding.

Extended Producer Responsibility System (EPR) aka Cost Internalization System (CI)

This system is a theoretical system charted to demonstrate EPR. It is similar to the system proposed in the 2003 Washington e-waste legislation (HB 1942), the system the NEPSI system could transition to after the seven year ARF, and a component of the WA Hybrid system in HB 2488. Chart B shows how the theoretical EPR system would work.

How it Works (theoretical)

Administration

Manufacturers are responsible for planning, implementing and financing the system. They can do this as individual companies (referred to as Individual Responsibility) or Collectively, using a national TPO or several different TPOs. Therefore, administration will vary, depending on the approach of the manufacturer. If a TPO is used, it is anticipated it would have some multi-stakeholder representation, but would be mostly dominated by industry. Manufacturers would develop business relationships that fit their individual business models and are beneficial to them.

The manufacturers, individually, collectively through a national TPO, or collectively through multiple TPOs, are responsible for the overall functioning and financing of the system, such as contracting for adequate services. Manufacturers, or the TPOs, contract for recycling services by Processors, and provided within the contracted amount, a Collection Incentive Payment (CIP) could be paid, or Collectors could be contracted with directly to provide service. The CIP could be paid to Collectors directly by the Manufacturers or via the Processors, to reimburse for collection costs, encourage collection, and “buy in” products for recycling.

Manufacturers

Manufacturers are directly responsible for the system, individually or collectively. The Manufacturers sell products to Retailers. The costs of the system are absorbed by the manufacturer as a cost of doing business, are taken from other cost centers, or are incorporated into the overall cost of the product. Manufacturers pay for the system directly or through providing funds to a TPO to manage the system on their behalf.

Retailers

Retailers may choose to provide collection services and promote the recycling programs, but have no required responsibilities, and do not collect and submit a visible fee. No Retailer book keeping and accounting practices change.

Customers

Customers pay no visible fee at the time of purchase, and may not pay any increase in product price depending on how the manufacturer has structured its program and what efficiencies and cost reductions it has attained. For recycling, the customer must use

whatever services are available for that brand, provided through the Manufacturer or TPO, at no cost. Otherwise, they must use whatever other programs may or may not exist, probably paying an end of life fee. Also, more expensive services, such as curbside collection, that exceed in costs what the Collection Incentive Payment or Manufacturer covers may result in additional charges.

Collectors

or its TPO has contracted with. The Manufacturer or its TPO could also develop a system whereby a diversity of collectors are encouraged to establish services, due to a Collection Incentive Payment or other collection incentive mechanism. This could encourage Retailers, Charities, Recyclers, and Governments to provide collection services. Those that find it beneficial to do so, and affordable due to the Collection Incentive Payment or other mechanism, provide service voluntarily.

Processors

Processors that contract with the Manufacturers or TPO provide Environmentally Sound Management (ESM) and agree to pass through CIP to Collectors, if that collection incentive tool is used. Processors bill Manufacturers or TPO for services.

Manufacturer or TPO on behalf of Manufacturer

Establishes ESM and export standards. Receives and approves billings from Processors. Establishes other services, promotion and coordination as necessary. Adjusts system and payments as needed to meet budget and performance requirements, including the level of collection necessary to serve Customers. Manufacturers are able to adjust the program based upon actual cost of recycling their materials and any design changes or system efficiencies they achieve directly benefit them.

Pros:

- Customer does not pay extra fee, and may pay nothing in addition.
- Customers don't complain about "taxes." Nothing changes in purchase process for customer.
- Retailer does not need to collect fee and incur administrative costs. Nothing changes in sales process for retailer.
- No government bureaucracy created.
- Manufacturers directly responsible for success of system and system efficiencies, which can be gained using private sector ingenuity.
- Establishes program based on business models and market drivers.
- Manufacturers directly benefit from design changes to reduce toxicity and increase recyclability.
- Manufacturers engaged in market development for recycled materials due to self-interest.
- Manufacturers able to compete with each other for best, most popular, and most efficient programs.
- Provides funding for historic and new material.

- Establishes services that involve customer relationships with brand owners/Manufacturers.
- Drives Manufacturer divisions to work as a team, such as product design and marketing, and ensures information will be provided through Manufacturer websites, packaging and owner manuals.
- Manufacturers responsible for ensuring collection system. No entities required to collect if not beneficial to them.
- Establishes a program that can be easily applied to other product types.
- Establishes ESM and export standards needed by and acceptable to “deep pocket” manufacturers and their customers and shareholders.
- Many other benefits are possible, based on arrangements with Manufacturers and system design.

Cons:

- Does not necessarily establish financial support for broad range of collector types and services.
- There may be little consistency between programs, making consumer awareness and use more problematic.
- There may still be pressure on some governments and other collector types to provide services.
- Difficult to ascertain if all manufacturers are meeting obligations, since no visible fee is collected at retail.
- This is a new approach that is not widely understood. There will be complexities, difficulties, successes and failures.
- It is unclear how Orphan materials will be covered.

Relevance

Many governments, retailers and non-governmental organizations favor this approach. A number of manufacturers, such as Dell and HP support a partial step in this direction, in NEPSI and as a U.S. approach. This type approach was used in the 2003 WA E-waste Legislation (HB 1942) and has appeared in a number of bills introduced across the country. This approach is phased in under the proposed WA E-waste legislation (HB 2488). Governments working with the Product Stewardship Institute selected this system as the preferred system for state legislation. The NEPSI system, after seven years, is to transition into something similar or that does part of what is described above. Legislation adopted by the European Union incorporates this form of financing. Television manufacturers and computer manufacturers with less current market share but with much historic product from past sales tend to oppose this approach

Washington Legislation (HB 2488) Hybrid

This approach is a hybrid of the two approaches discussed previously. The WA Hybrid establishes a dual system, with the EPR system ramping up over 5 years and the collection of a small ARF sun setting after 5 years. There are many benefits to this approach, addressed in the pros and cons section below.

How it Works (HB 2488 and theoretical)

Administration

Manufacturers are responsible for planning, implementing and financing the system for 20% of their products by 2007 and an additional 10% per year for the next 5 years. They can do this as individual companies (referred to as Individual Responsibility) or Collectively, using a national TPO or several different TPOs. Therefore, administration will vary, depending on the approach of the manufacturer. If a TPO is used, it is anticipated it would have some multi-stakeholder representation, but would be mostly dominated by industry. Manufacturers would develop business relationships that fit their individual business models and are beneficial to them.

The manufacturers, individually, collectively through a TPO, or collectively through multiple TPOs, are responsible for the overall functioning and financing of their portion of the system, such as contracting for adequate services. Manufacturers, or the TPOs, contract for recycling services by Processors, and provided within the contracted amount, a Collection Incentive Payment (CIP) could be paid, or specific Collectors could be contracted with directly to provide service. The CIP could be paid to Collectors directly by the Manufacturers or via the Processors, to reimburse for collection costs, encourage collection, and “buy in” products for recycling.

Simultaneously, the Department of Community, Trade and Economic Development establishes an appointed advisory committee and a fund for receiving a small ARF, which is collected at the point of sale. These funds are utilized to provide grants and loans for the establishment of collection and recycling infrastructure in the state, for the cost of collecting orphan and historic product not collected through manufacturer funded programs, and for other system stated purposes.

Manufacturers

Manufacturers are directly responsible for their portion of the system, individually or collectively. The Manufacturers sell products to Retailers. The costs of the system are absorbed by the manufacturer as a cost of doing business, are taken from other cost centers, or are incorporated into the overall cost of the product. Manufacturers pay for the system directly or through providing funds to a TPO to manage the system on their behalf.

Retailers

Retailers must collect the State mandated ARF of \$5. They keep \$.50 to cover their costs and submit the payment to CTED. They may choose to provide collection services and promote the recycling programs, but none are required. The ARF collection activity sunsets after 5 years.

Customers

Customers pay a \$5 visible fee at the time of purchase, and may or may not pay any increase in product price depending on how the manufacturer has structured its program and what efficiencies and cost reductions it has attained. For recycling, the customer must use whatever services are available for that brand, provided through the Manufacturer or TPO, at no cost. Otherwise, they must use whatever other programs exist. These programs may be at no charge, a reduced charge, or a full end of life fee, depending upon whether or not the Collector received a grant to cover some or all costs.

Collectors

Collection will be provided by the Manufacturer or whoever the Manufacturer or its TPO has contracted with for its portion of services. The Manufacturer or its TPO could also develop a system whereby a diversity of collectors are encouraged to establish services, due to a Collection Incentive Payment or other collection incentive mechanism. This could encourage Retailers, Charities, Recyclers, and Governments to provide collection services. Those that find it beneficial to do so, and affordable due to the Collection Incentive Payment or other mechanism, provide service voluntarily, with support from the manufacturers. The same or other Collectors can apply to the CTED fund to cover costs through loans or grants. Not all collectors are guaranteed grants, as funds may not be adequate.

Processors

Processors that contract with the Manufacturers or TPO provide Environmentally Sound Management (ESM) and agree to pass through CIP to Collectors, if that collection incentive tool is used. Processors bill Manufacturers or TPO for services for the manufacturer portion of the system. Otherwise, processors charge an end of life fee or apply to CTED for loans or grants to cover the cost of collecting orphan and additional historic material that wasn't paid for by manufacturer's share of program.

Manufacturer or TPO on behalf of Manufacturer

Establishes ESM and export standards. Receives and approves billings from Processors. Establishes other services, promotion and coordination as necessary. Adjusts system and payments, as needed to meet budget and performance requirements, including the level of collection necessary to serve Customers. Manufacturers are able to adjust the program based upon actual cost of recycling their materials and any design changes or system efficiencies they achieve directly benefit them.

Pros:

- All parties share in establishment and long-term aspects of program. Full responsibility isn't placed on any party.
- Retailer collects fee for limited time and keeps generous 5% of fee to cover costs.
- ARF is relatively small.
- Government bureaucracy is kept to a minimum and government collection of funds sunsets after 5 years.
- Collectors not getting adequate support from Manufacturer programs have potential funding source to cover costs.
- Raises funds for infrastructure development and research by small business, resulting in expanded services and potentially design break through.
- Manufacturers directly responsible for success of their portion of system and system efficiencies, which can be gained using private sector ingenuity.
- Over time, establishes program based on business models and market drivers.
- Manufacturers directly benefit from design changes to reduce toxicity and increase recyclability.
- Manufacturers engaged in market development for recycled materials due to self-interest.
- Manufacturers able to compete with each other for best, most popular, and most efficient programs.
- Provides funding for orphan and historic through ARF to assist in "clean out" of old.
- Clean out of orphan and historic material while manufacturers ramp up eliminates unexpected cost burden on manufacturers and allows time for manufacturer system development.
- Manufacturers cannot complain about not knowing of responsibilities in advance.
- Establishes services that involve customer relationships with brand owners/Manufacturers for Manufacturer portion.
- Drives Manufacturer divisions to work as a team, such as product design and marketing, and ensures information will be provided through Manufacturer websites, packaging and owner manuals.
- Manufacturers responsible for ensuring collection system for their portion of the system. No other entities required to collect if not beneficial to them.
- Establishes ESM and export standards needed by and acceptable to "deep pocket" manufacturers and their customers and shareholders.
- May pioneer program that can be applied to other product types.
- Many other benefits are possible, based on arrangements with Manufacturers and system design.

Cons:

- Does not guarantee full needed financing to provide necessary collection and recycling efforts. There may not be enough money.
- Loan and grant structure for funding will eliminate some potential or actual collectors.
- There may be little consistency between programs, making consumer awareness and use more problematic.

- Consumers will be confused why some services are free, some cost little, and some cost more.
- Consumers will be confused why they paid a fee at point of sale and may also have to pay fee at end of life.
- Retailer must collect fee, even though for limited time and with financial incentive.
- Services may not be consistently available across state.
- There may still be pressure on some governments and other collector types to provide services, though adequate funding may not exist.
- Difficult to ascertain if all manufacturers are meeting obligations.
- The Manufacturer portion of the system is a new approach that is not widely understood. There will be complexities, difficulties, successes and failures.
- It is unclear how Orphan materials will be covered, or the 30% not collected by manufacturers, after the ARF sunsets in 5 years.

Relevance

This is a very interesting compromise approach that shares responsibility and phases in a progressive system over time. During that time, funding is created to stimulate small business development and pay for collection of orphan and historic products. Numerous hybrid systems were considered in NEPSI but none quite like this. Generally, those that oppose ARF systems will oppose this. Those that oppose EPR systems will oppose this. However, most objections to either system are ultimately addressed through this hybrid. It is a reasonable compromise approach, if the issues about consumer confusion can be worked out. Likely, this approach will be copied in legislation introduced by other states.

Use of End of Life Fees (EOL)

This is not a system in that the components are not truly linked or coordinated. Utilizing EOL fees seems simple but creates many problems. It is basically the status quo, where any programs currently exist.

How it Works (EOL)

Administration

There is no administration as there is no system. Individual players accomplish administration.

Manufacturers

The Manufacturers sell products to Retailers.

Retailers

Sell product to Customer.

Customers

Customers buys product. When product is obsolete to Customer, Customer decides what to do with it, based on attitudes and perceptions, costs and convenience. Options include legal or illegal disposal, storage and stock piling, donation to charity (regardless of acceptance policies), paying for recycling, if available, giving to relative, etc.

Collectors

Collectors must charge a fee to cover their costs. Collectors who do not charge a fee are likely using general tax or rate revenues, inappropriately disposing of materials collected, or exporting in an irresponsible way. Collectors receive a payment to pay for recycling of product.

Processors

Processors charge a fee to collectors to take materials and recycle them.

Pros:

- A simple scenario that pays for the recycling of a product when it is being recycled.
- End of life fee can be adjusted to cover actual direct costs.
- Eliminates problems with collecting ARF by retailers.

Cons:

- Fees paid EOL result in higher customer and public costs than Front End Financing models.
- Some products are so expensive to recycle EOL, such as console televisions, that no one will be willing to do it.

- EOL fees will result in low recycling rates and high costs to encourage people to use recycling services. Only the most conscientious will participate.
- Fees paid EOL encourage disposal instead of recycling.
- EOL fees encourage storage and discourage recycling.
- EOL fees encourage illicit and illegal disposal and dumping.
- EOL fees encourage dumping “donations” on charities and schools.
- Fees are paid to Collectors prior to recycling actually happening. This can result in stockpiling and fraud. (“Electronics are the tire piles of this decade.”)
- Fees are paid to Processors prior to recycling actually happening. This can result in stockpiling and fraud.
- Types of Collectors limited by those that can collect fee. Some facilities, charities, and other potential collectors are unable to.
- Charities and Schools that have materials dumped on them incur high EOL fees to get rid of, cutting into funds for their programs.
- Students, the poor and others who receive donated products from others are least able to pay EOL fees at time of recycling.
- Manufacturers have no responsibility.
- Manufacturers have no incentive to assist with promotion, funding, or coordination of issue within the company or the community.
- There is no market or other driver for manufacturers to improve design to minimize toxics or recycling costs. Their product design can continue to increase EOL costs due to increased toxicity and difficulty to recycle.
- Most likely scenario to drive for “government pays all” programs and use of general tax fund or rate funds to cover costs.
- Public sector will be left with clean up costs for illegal dumping and site clean up from abandoned stockpiles.
- There is no coordinated process to protect against inappropriate handling and use of inappropriate export.
- Use of the scenario will result in continuous and on-going calls for a better system.

Relevance

This approach has been rejected as a long- term solution by many governments in Washington and across the country. It has also been rejected by a diversity of other stakeholders and in most other developed countries, most of which are in the process of developing FEF systems. Because it reflects how things have been done in the past, those that have not been actively engaged on these issues sometimes suggest EOL or government pays all programs as the solution. EOL activities are relevant for use during an interim period while a FEF system is established voluntarily, for the state, or nationally. EOL programs have helped get some initial collection and processing infrastructure established and have been used by manufacturers and retailers to initially pioneer programs.