

# Panasonic's Initiatives for Recycling

July 15, 2011

Shigehiko Nakayama

Recycling Management Group,  
Corporate Environment Affairs Division  
Panasonic Corporation

# Table of Contents

<b>I</b>	<b>Home Appliance Recycling Law in Japan</b>
<b>II</b>	<b>Panasonic's Initiatives for Recycling</b>
<b>III</b>	<b>Closing Thoughts</b>

# Legislation Background of Home Appliance Recycling Law

(TVs, Refrigerators, Washing machines & Air-conditioners)

## Four items

### 1. Treatment

Difficult

Limit of treatment by municipality

- Difficult items for proper treatment
- Growing in size of home appliance
- Limit of treatment with incinerator(Issue of dioxin)
- Difficult in treating fluorocarbons for insulation

### 2. Emission

High

Large volume occupied by home appliance  
(18-20 million units / 600K tons annually,  
accounting for 15% of all oversized trash)

- Tight landfills for general waste  
(8.8 remaining available years as of 2000)

### 3. Resources Value

High

Useful resources contained is rich

- Effective use of resources (iron, copper, aluminum, etc.)

# Overview of Home Appliance Recycling Law

Enactment

• • • May 1998

Promulgation

• • • June 1998

Enforcement

• • • April 2001

Revision and implementation of government ordinance

• • • April 2009

## Covered items

## Legal recycling rate\*

1. TVs (CRT TVs)

55 (55) % or above

(Flat-screen TVs)

(50) % or above

2. Refrigerators & freezers

50 (60) % or above

3. Washing machines & clothes dryers

50 (65) % or above

4. Home-use air-conditioners

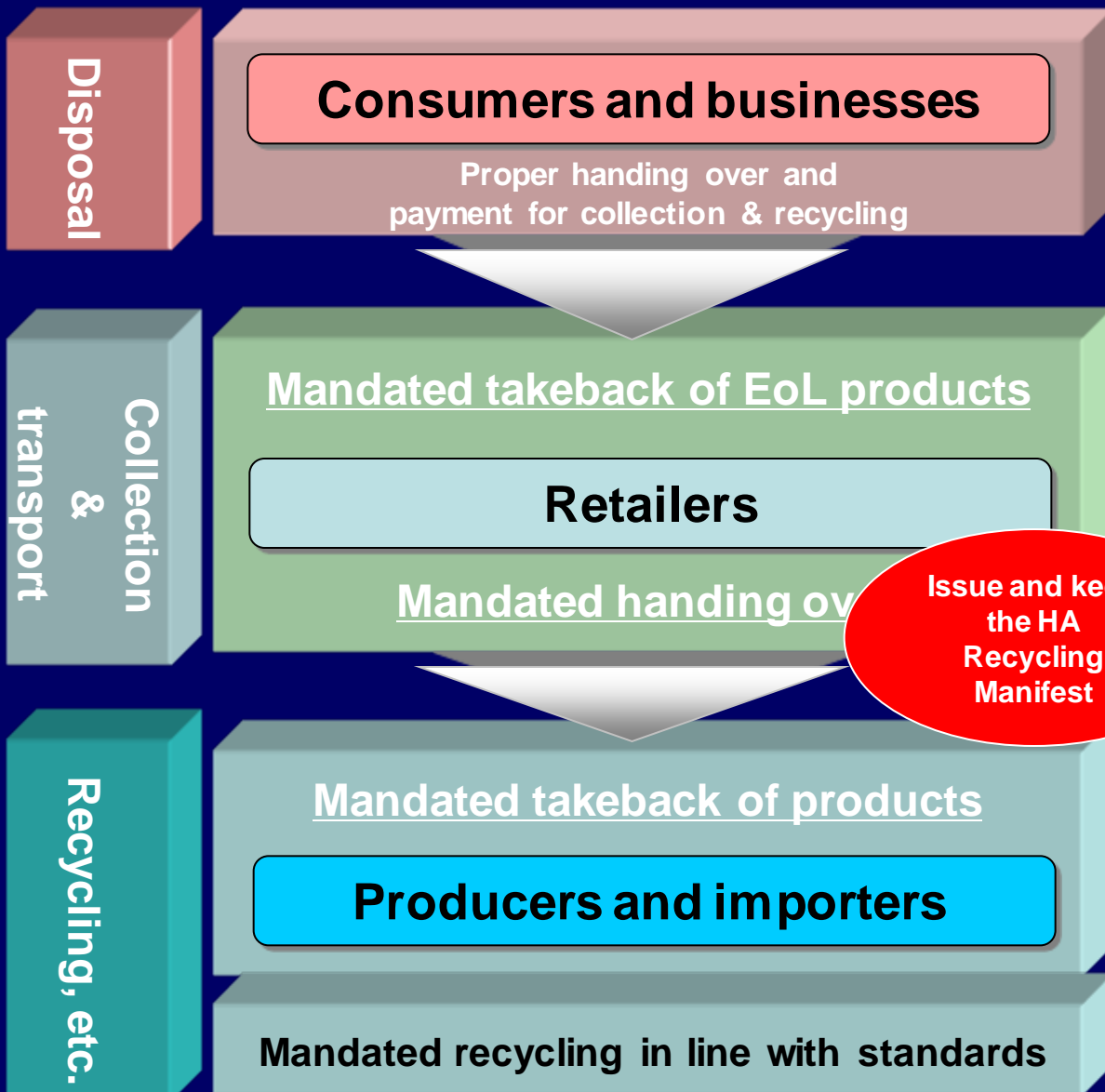
60 (70) % or above

\* ( ): legal recycling rates after FY09

\* Recycling rate (%)

= Weight of valuable materials / Gross weight of wastes x 100

# Scheme under HARL and Manufacturer's Role



## Designated collection point (379 sites)



Receiving & unloading



Verification with a HA Recycling Manifest



Input and sending data to the HA Recycling Manifest System



Transport from DCP to RP

**Issue and keep the HA Recycling Manifest**

## Recycling plant (49 facilities)



Dismantling CRT of TV



Recovery of refrigerant fluorocarbon from fridge

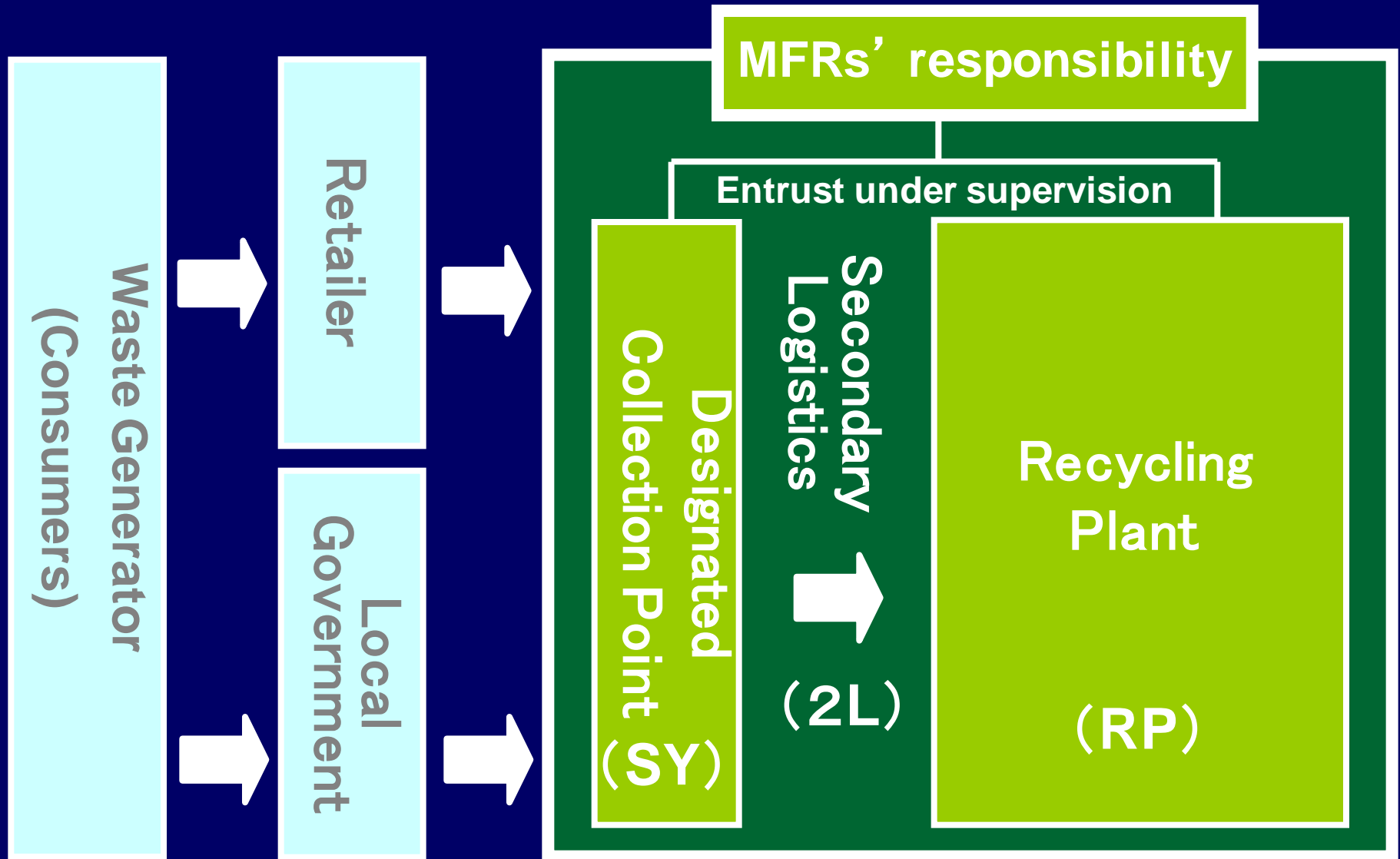


Manual dismantling of washing machine



Recovery of refrigerant fluorocarbon from AC


# MFRs' Responsibility in Home Appliance Recycling System



\*Manufacturers are responsible for breach of HARL at SY and RP.

# Two Manufacturer Schemes (Group A & Group B)

1. Individual producer responsibility in principle but it is inefficient
  2. Need a system in which competition principle works in line with Government's guideline
- => Manufacturers formed two groups of A and B

	Group A	Group B
Basic concept	<p>Effective utilization of existing recyclers' facilities</p>  <p>Decentralized local processing system</p>	Newly established manufacturers' own recycling plants and utilizing logistics-dedicated companies
Participating manufacturers	<p><b>24</b> (Panasonic, Toshiba, etc.)</p>	<p><b>21</b> (Hitachi, Mitsubishi, Sharp, Sanyo, Sony, etc.)</p>
Collection volume (on a unit basis)	<b>Approx. 40%</b>	<b>Approx. 60%</b>
Designated collection points (SY)	<p><b>379</b> (commoditized in Sep, 2010)</p>	
Recycling plants (RP)	<p><b>36</b> (Including plants jointly-run by A &amp; B)</p>	<p><b>18</b> (Including plants jointly-run by A &amp; B)</p>

# List of Panasonic's Home Appliance Recycling Fee

Item		Type	Recycling Fee	
			(Currently)	(At the start of the law)
TVs	CRTs	16 inches & over	<b>2,835 yen</b>	<b>2,835 yen</b>
		<u>15 inches &amp; under</u>	<u><b>1,785 yen</b></u>	
	LCDs / Plasma	16 inches V & over	<b>2,835 yen</b>	-
		<u>15 inches V &amp; under</u>	<u><b>1,785 yen</b></u>	-
Refrigerators / Freezers		171L and more	<b>4,830 yen</b>	<b>4,830 yen</b>
		<u>170L and less</u>	<u><b>3,780 yen</b></u>	
Washing machines / Clothes dryers		---	<b>2,520 yen</b>	<b>2,520 yen</b>
Air-conditioners		---	<u><b>2,100 yen</b></u>	<b>3,675 yen</b>

\* Additional collection and transport charge by retailers and local governments other than the above.

# Home Appliance Recycling Manifest

(A manifest, mandated to keep for three years)

■ Unifying all the information related to waste generator, retailer and manufacturer

家電リサイクル券 (特定家庭用機器廃棄物管理票)

③ 指定引取場所控

お問合せ管理票番号  
0000-000000000-0



おなまえ  
**家電太郎** 様  
(電話番号 012-345-6789)

小売業者  
交付日(引取日)西暦: 年 月 日  
名称 ○○電気株式会社  
△△店  
住所 〒 999-9999 〒000011112222  
○○県□□市△△町××-××  
(電話番号 098-765-4321)

指定引取場所印・引取日  
**見本**  
※日付印を使用ください。

品目・料金区分	区分別			備考
	小	大		
エアコン	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	製造業者等により料金区分のある場合とない場合があります。
テレビ	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
ブラウン管式	20	21	22	
液晶・プラズマ式	50	51	52	
冷蔵庫・冷凍庫	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
洗濯機・衣類乾燥機	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	40

製造業者等名

<input type="checkbox"/> パナソニック (100)	<input type="checkbox"/> 東 芝 (110)	<input type="checkbox"/> ダイキン工業 (120)	<input type="checkbox"/> 日本ビクター (130)
<input type="checkbox"/> 日立アプライアンス (300)	<input type="checkbox"/> シャープ (310)	<input type="checkbox"/> 三菱電機 (320)	<input type="checkbox"/> 三洋電機 (330)
<input type="checkbox"/> ソニー (340)	<input type="checkbox"/> 富士通ゼネラル (350)	<input type="checkbox"/> ソニー(アイワ) (360)	<input type="checkbox"/> 三菱重工空調システム (370)

( ) コード ( )  
上記以外の場合は最終枚目裏面をご参照の上、該当する製造業者等名を( )内にご記入ください。

※料金区分  
●ブラウン管式テレビ  
小: 15型以下、大: 16型以上  
●液晶・プラズマ式テレビ  
小: 15V型以下、大: 16V型以上  
●冷蔵庫・冷凍庫  
小: 全定格内容積170L以下  
大: 全定格内容積171L以上

引取日 西暦: 年 月 日 受領印  
収集・運搬業者  
名称・住所

別添入金処理の場合記入不要

再商品化等料金	円
収集・運搬料金	円
消費税	円
合計	円

③ 指定引取場所控

# Transition of Recycled Units & Recycling Rate (All MFRs)

(1,000 units or 1,000 tons)

				2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
<b>Collected units</b> (The Total of 4 items)				8,549	10,150	10,462	11,216	11,620	11,618	12,112	12,900	18,786	27,700
<b>Recycling rate</b>	<b>TVs</b>	CRT	(legal) 55% or more	73%	75%	78%	81%	77%	77%	86%	89%	86%	85%
		PDP & LCD	50% or more	-	-	-	-	-	-	-	-	-	74%
	<b>Fridges &amp; freezers</b>		50% or more	59%	61%	63%	64%	66%	71%	73%	74%	75%	76%
	<b>Washing machines &amp; clothes dryer</b>		50% or more	56%	60%	65%	68%	75%	79%	82%	84%	85%	86%
	<b>Air- conditioners</b>		60% or more	78%	78%	81%	82%	84%	86%	87%	89%	88%	88%

27kg/unit

Figures of recovered resources  
by recycling 4 items (iron,  
copper, aluminum, etc.)

**211    263    282    311    334    345    378    414    537    746**

\*legal recycling rates noted above are of the time when the law initiated and were revised in FY2009.

# Table of Contents

<b>I</b>	Home Appliance Recycling Law in Japan
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<b>III</b>	Closing Thoughts

# Characteristics of Panasonic's Recycling System

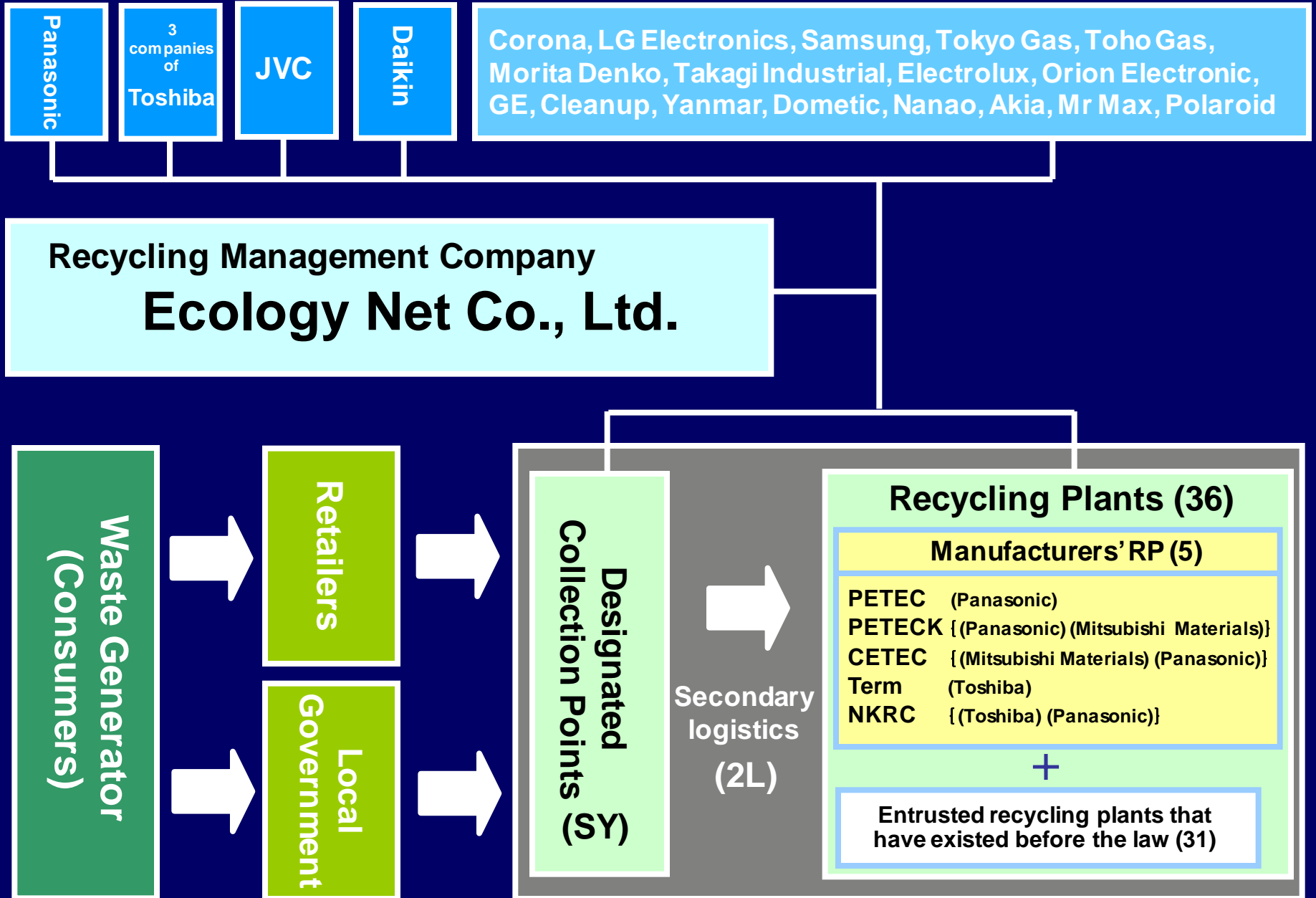
1. Panasonic developed a system that can be accepted by society and related stakeholders : Panasonic formed **Group A**

2. Panasonic established a recycling management company **Ecology Net** jointly with Toshiba, which takes on 24 manufacturers' recycling obligations:

Ecology Net developed a system to administer and operate all the 36 recycling plants and 379 designated collection points collectively

3. Group A adopted a geographically dispersed recycling system **utilizing existing contractors (collectors, recyclers, etc.)** through the administration of Ecology Net

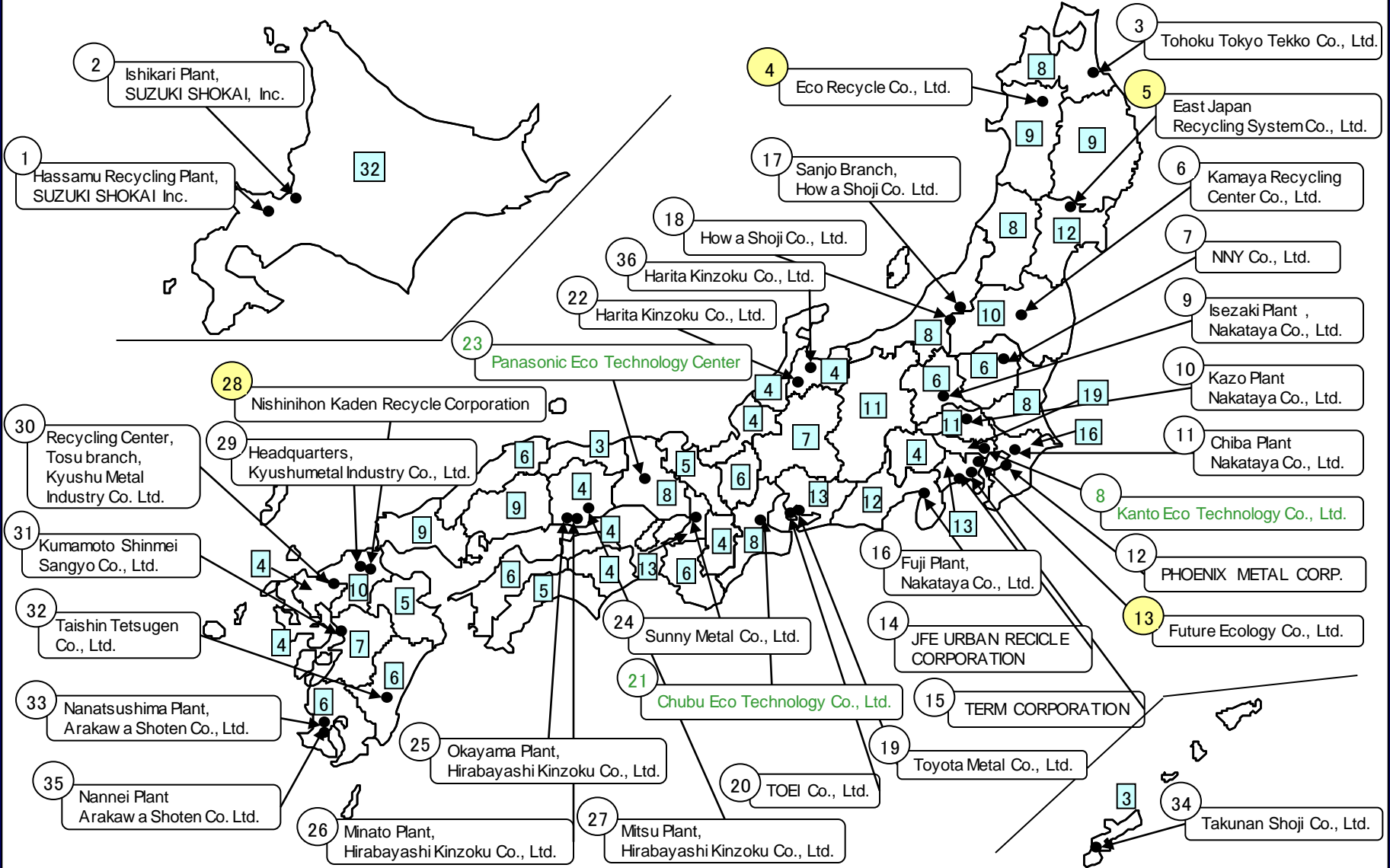
# Home Appliance Recycling System of Panasonic (Group A)



# Home Appliance Recycling Network of Group A

As of April 1, 2011  
Ecology Net Co., Ltd.

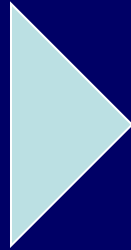
- Recycling plants for Group A
- Recycling Plants for both Group A & Group B
- The number of designated collection points in the Prefecture



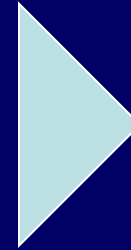
# Processing Flow at Designated Collection Point



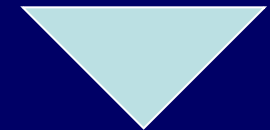
**Receiving used home appliance**



**Checking Recycling Manifest against 4 items of used appliance**



**Reading and inputting Recycling Manifest**



**Uploading 4 items of home appliance**



**Storing Home Appliance Recycling Manifest**



**Sending data to the Home Appliance Recycling System**

# Overview of Panasonic Eco Technology Center (PETEC)

## 1 Company profile

1. Full-fledged operation:  
started on April 2, 2001
2. Capital:  
400 million yen  
(capitalized 100% by Panasonic)
3. Annual treatment volume:  
1.44 million units (result of FY10)

## 3 Working style

### Responding to incoming fluctuation

- Annual operating days: 260
- Introduced varying working hours  
Utilizing daylight-saving time system, 6 teams with 5 successive working days & 1 holiday, night shift, staggered hours, etc.

## 2 Mission

The concept:

### “From Products to Products”

- Recycling of end-of-life home appliances
- Development of resource technology and feedback to product design
- Acceptance of visitors for environmental education



The External view of Panasonic Eco Technology Center

# Table of Contents

**I** Home Appliance Recycling Law in Japan

**II** Panasonic's Initiatives for Recycling

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# **Closing Thoughts : Is Japan a Model Case?**

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- 1. Objective of the law is clear.**
- 2. The law stipulates an appropriate shared responsibility.**
- 3. Moderate competitive condition among players is built in the system.**

# Closing Thoughts : Comparative Introduction of Japan/US/India



- 10 years have past since law enforcement. System itself penetrated deeply into society.
- Meanwhile, further improvement and evolution of the system is also required from society.



- Still on the way to seeking for an ideal national solution.
- Complexity can be the enemy of convenience for both consumers and manufacturers.



- There are issues that are often seen in emerging countries with less organized social infrastructure and recycling infrastructure.
- Existence of unorganized sector.



**Thank you for your kind attention**