

Panasonic's Initiatives for Recycling

July 15, 2011

Shigehiko Nakayama

Recycling Management Group,
Corporate Environment Affairs Division
Panasonic Corporation

Table of Contents

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

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

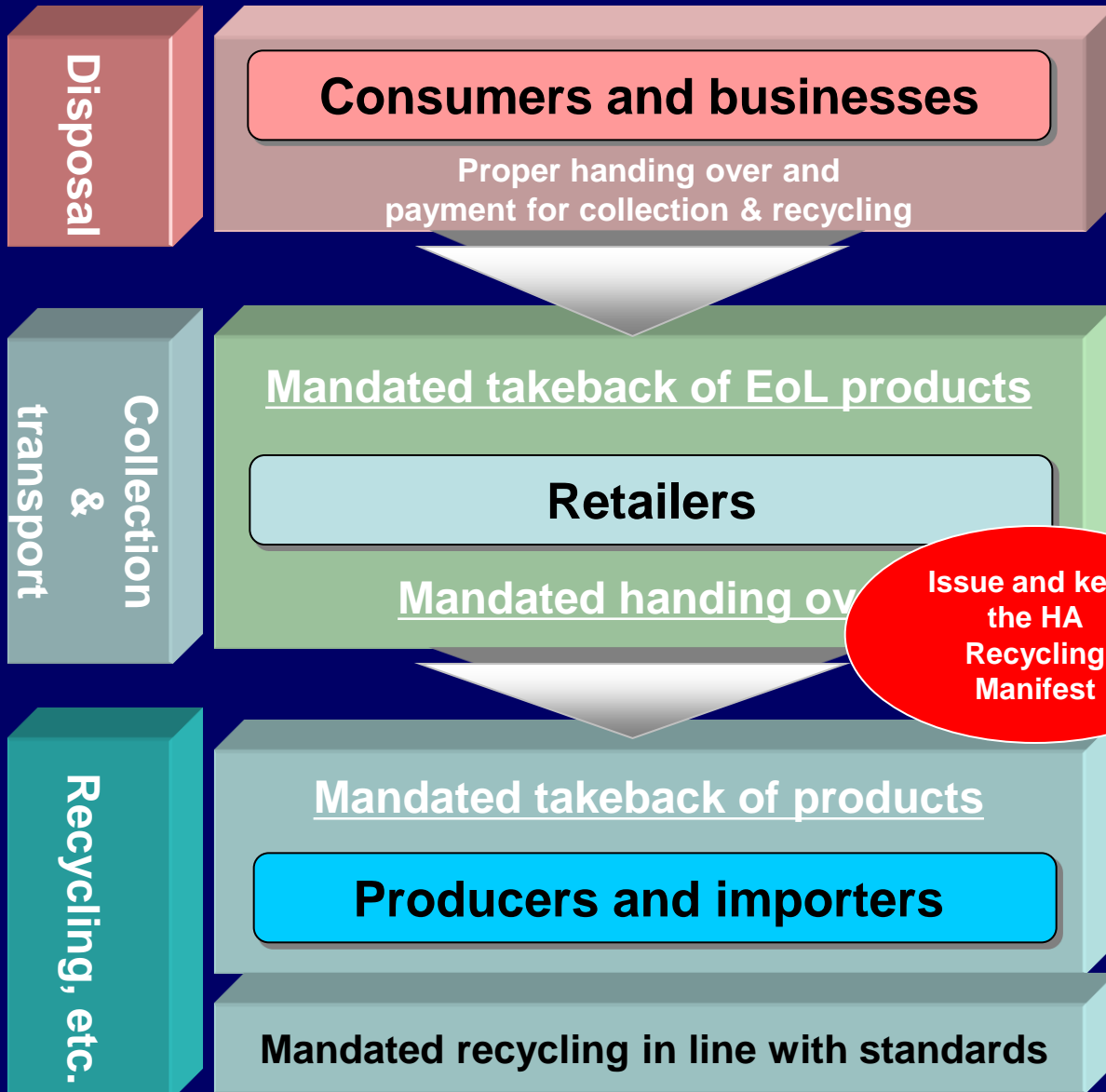
60 (70) % or above

* (): 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

Recycling plant (49 facilities)



Dismantling CRT of TV



Recovery of refrigerant fluorocarbon from fridge

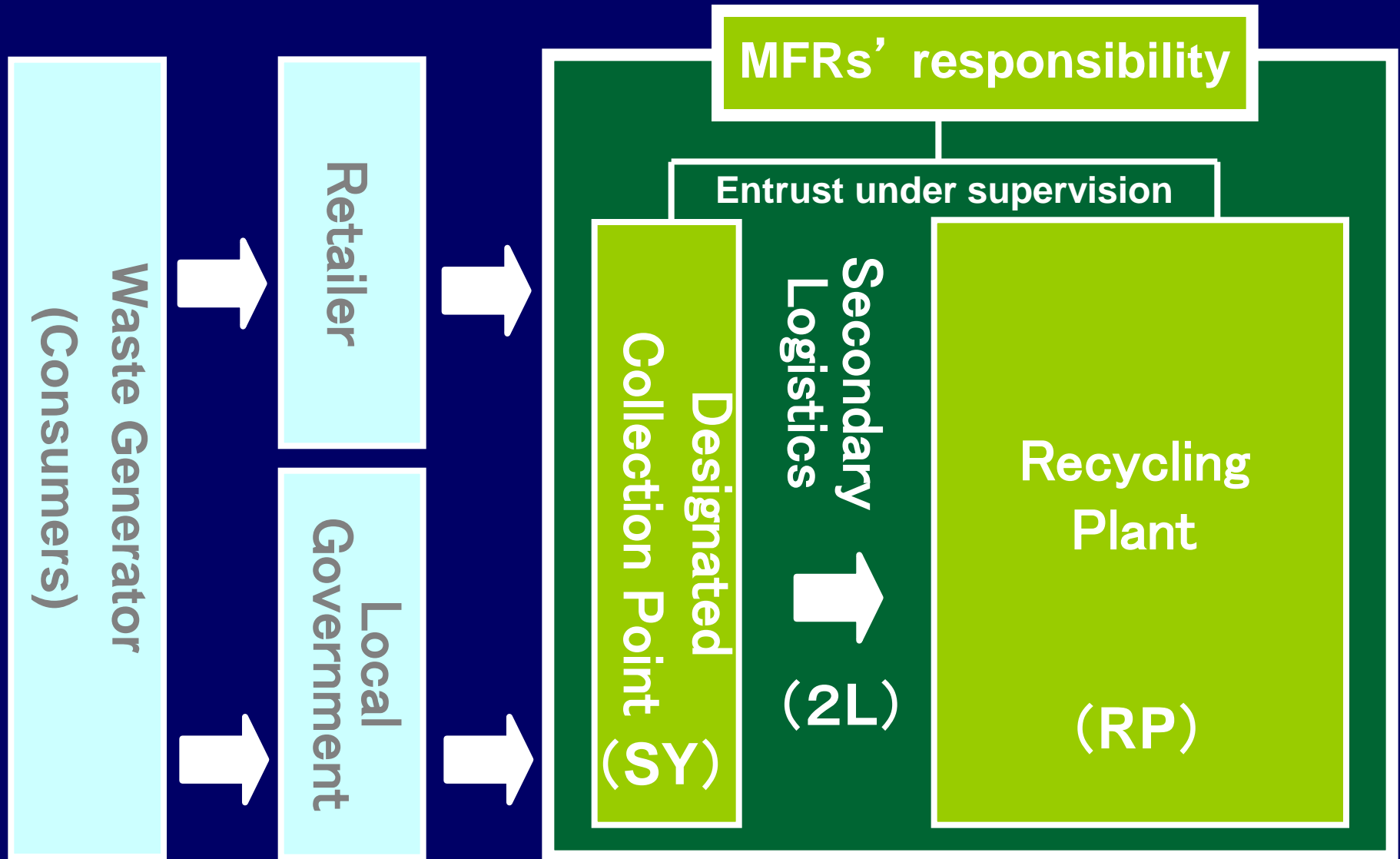


Manual dismantling of washing machine



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>24 (Panasonic, Toshiba, etc.)</p>	<p>21 (Hitachi, Mitsubishi, Sharp, Sanyo, Sony, etc.)</p>
Collection volume (on a unit basis)	Approx. 40%	Approx. 60%
Designated collection points (SY)	<p>379 (commoditized in Sep, 2010)</p>	
Recycling plants (RP)	<p>36 (Including plants jointly-run by A & B)</p>	<p>18 (Including plants jointly-run by A & 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	2,835 yen	2,835 yen
		<u>15 inches & under</u>	<u>1,785 yen</u>	
	LCDs / Plasma	16 inches V & over	2,835 yen	-
		<u>15 inches V & under</u>	<u>1,785 yen</u>	-
Refrigerators / Freezers		171L and more	4,830 yen	4,830 yen
		<u>170L and less</u>	<u>3,780 yen</u>	
Washing machines / Clothes dryers		---	2,520 yen	2,520 yen
Air-conditioners		---	<u>2,100 yen</u>	3,675 yen

* 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

0000-00000000-0



おなまえ

家電太郎 様

(電話番号 012-345-6789)

交付日(引取日)西暦: 年 月 日

小売業者
 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"/>	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"/>	
ブラウン管式	20	21 22	
液晶・プラズマ式	<input type="checkbox"/>	<input type="checkbox"/>	
	50	51 52	
冷蔵庫・冷凍庫	<input type="checkbox"/>	<input type="checkbox"/>	
	30	31 32	
洗濯機・衣類乾燥機	<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

別途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
Collected units (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
Recycling rate	TVs	CRT	(legal) 55% or more	73%	75%	78%	81%	77%	77%	86%	89%	86%	85%
		PDP & LCD	50% or more	-	-	-	-	-	-	-	-	74%	79%
	Fridges & freezers		50% or more	59%	61%	63%	64%	66%	71%	73%	74%	75%	76%
	Washing machines & clothes dryer		50% or more	56%	60%	65%	68%	75%	79%	82%	84%	85%	86%
	Air-conditioners		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

I Home Appliance Recycling Law in Japan

II Panasonic's Initiatives for Recycling

III Closing Thoughts

Characteristics of Panasonic's Recycling System

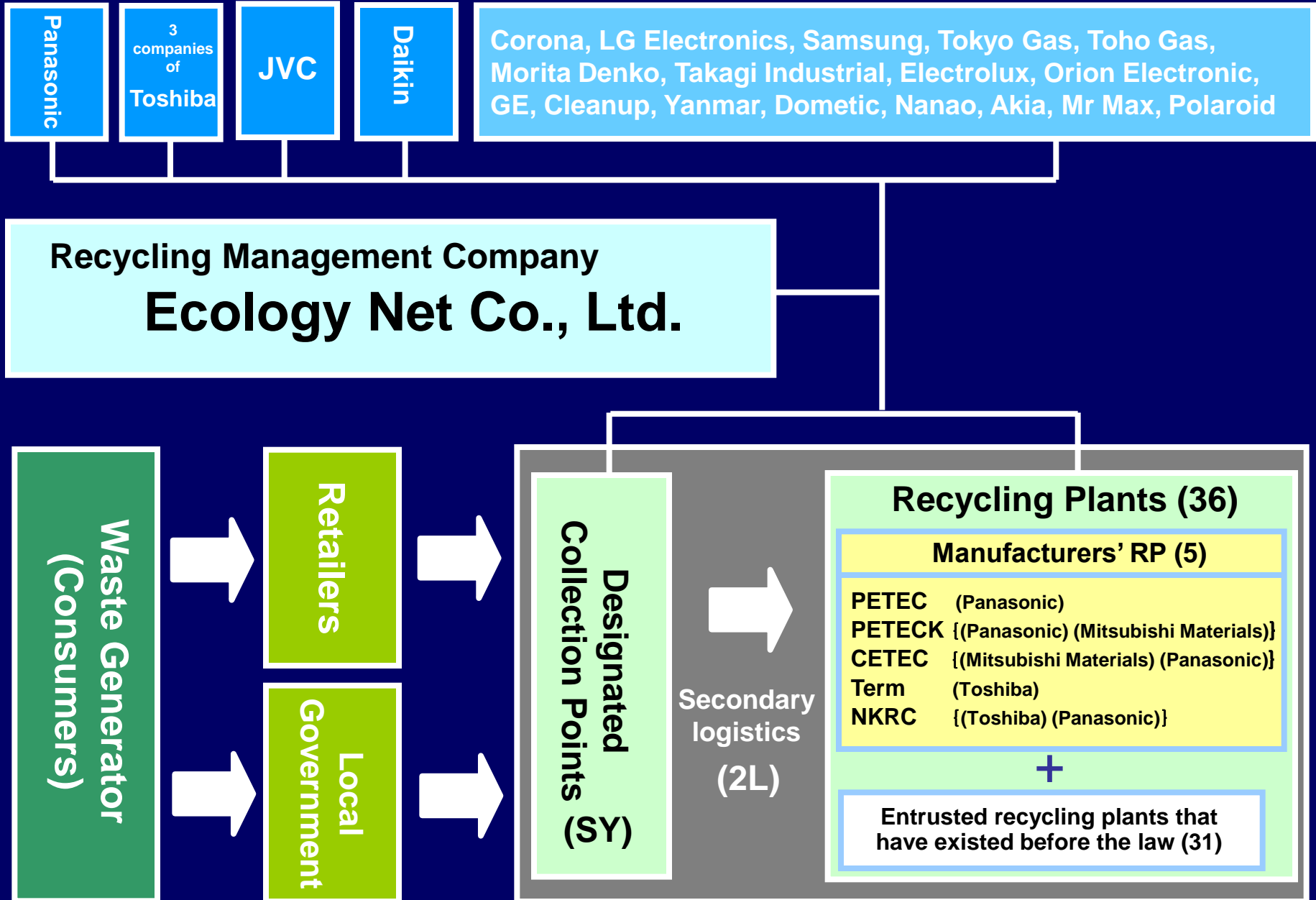
1. Panasonic developed a system that can be accepted by society and related stakeholders : Panasonic formed **Group A**

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

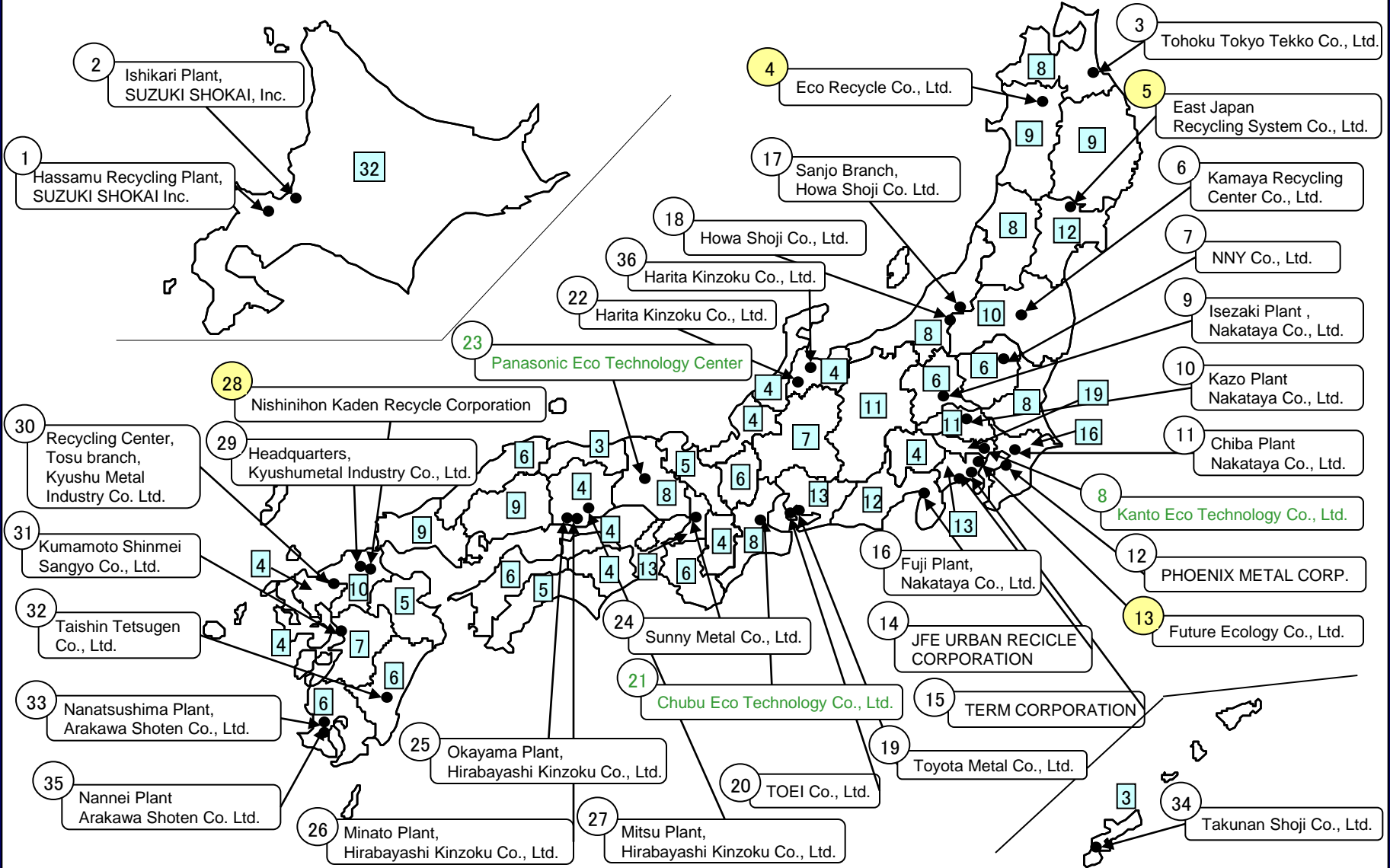
Home Appliance Recycling System of Panasonic (Group A)



Home Appliance Recycling Network of Group A

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

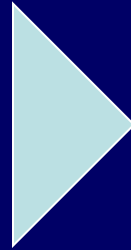
- Recycling plants for Group A
- Recycling Plants for both Group A & Group B
- The number of designated collection points in the Prefecture



Processing Flow at Designated Collection Point



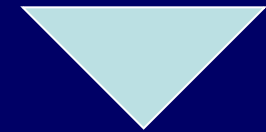
Receiving used home appliance



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

III Closing Thoughts

Closing Thoughts : Is Japan a Model Case?

- 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