

WEEE: Burden or Chance

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Structure of the presentation

- Outline of the WEEE Directive
- Panasonic's approach and policy
- Elements of implementation
 - Participation at recycling systems
 - Finance
 - Recycling operation
 - Quality Assurance
 - Reporting
 - Enforcement
 - Incentives for reuse
 - Incentives for DfR
- Producer responsibility options



WEEE Directive: roles and responsibilities

Member States

- Set up registration body
- Setup collection points by municipalities
- Market surveillance

Producers

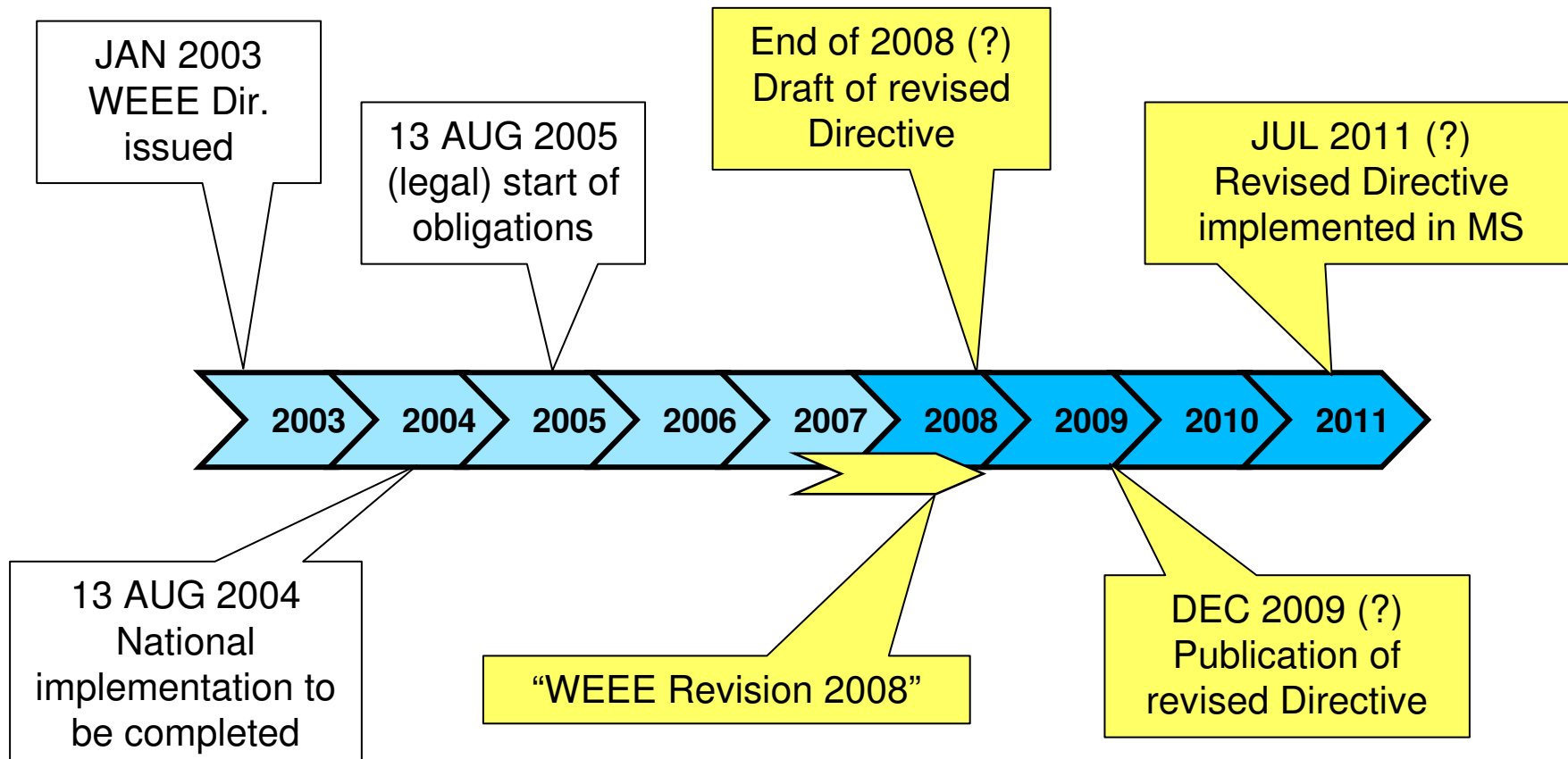
- Registration and reporting
- Provide financial guarantee
- Set up and manage WEEE Recycling schemes
- finance WEEE recycling
- Provide product information

End-users

- Discard WEEE into separate collection



Time schedule of the WEEE Directive



Panasonic's Global Recycling Policy

“Panasonic's basic policy towards End-of-Life product recycling is not only pro-active compliance with country-specific recycling legislation, but also a willingness to take both **effectiveness and efficiency** into consideration, corresponding to the local situation of recycling infrastructure etc., when developing **collection and recycling systems**.

In this way Panasonic is tackling in a positive manner for **End-of-Life product recycling** as well as Design for Environment aiming for recycling-easy.”



Panasonic's WEEE activities

- 2001: Foundation of “Ecology Net Ltd.”, one of two recycling management systems in Japan.
Establishment of eco-technology centre “METEC”.
- 2003: Panasonic’s “WEEE/RoHS Management Objective” was created.
Cooperation with other companies, first practical investigation.
- 2004: Investigations in Germany and Europe enhanced.
Recycling tests performed for all related product categories.
- 2005: Foundation of compliance scheme „EcologyNet Europe”



Elements of implementation:

1 Participation at recycling systems

- Producer registration
 - Member States set up a register of producers
 - Each producer must register
 - Producer: entity which puts electrical and electronic equipment on the market (importer, retailer, ...)
- Tasks of the register
 - Ensure that all producers participate in the system(s)
 - Receive sales data (weight/ units) from producer
 - Calculation take back obligation of each producer based on individual market share
 - Receives reports on collection and recycling results

Participation

Finance

Operation

Quality

Reporting

Enforcement

Reuse

DfR



Elements of implementation:

1 Participation at recycling systems

- Characteristics of collective systems
 - Obligation for all producers to participate
 - Clear costs structure, non-profit
 - System = financial guarantee
 - Clear system structure (who collects, who manages, who recycles, who participates/ or not)
 - Public awareness campaigns (whole society, communication of performance and transparency)
 - Defined environmental standards
- Characteristics of individual systems
 - Producer/ brand-specific collection and recycling
 - No responsibility for other brands/orphan products

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Elements of implementation:

1 Participation at recycling systems

Successful systems in Europe (Sweden, Norway, Switzerland)

High Collection rates (2005)

Sweden	14.0 kg/inhabitant and year
Norway	13.4 kg/inhabitant and year (2006: nearly 15 kg)
Switzerland	11.4 kg/inhabitant and year

- Joint collection + clear responsibility of systems for product categories could ensure the brand-specific separation w/o losses caused by competing systems
- No cherry-picking caused by competing systems!
- No loss in quality caused by price-driven competition!

→ **BUT: systems must contend with each other**

Participation

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Enforcement

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Elements of implementation:

1 Participation at recycling systems

Mass Balance of Household WEEE in Netherlands

Participation

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Product categories	Recycling Systems	Municipal leakage	Reuse + installers	Waste bin	Retail & uncertain	WEEE (total)
1a Large Household Appliances	0.82	1.25	3.3	-	2.64	8.0
1b Household Cooling Appliances	1.55	-	-	-	0.28	1.8
3a IT and Telecom	<i>In 3b</i>	-	-	-	-	-
3b Personal Computer	1.25	0.95	-	0.30	0.19	2.7
5 lighting (energy saving lamps)	0.02	-	-	0.07	-	0.1
2 Small Household Appliances	<i>In 4</i>	-	-	-	-	-
4 Consumer Equipment	1.73	0.30	0.3	1.11	1.58	5.1
6 Tools	0.35	-	-	0.37	-	0.7
7 Toys	0.02	-	-	0.18	-	0.2
TOTAL	5.7	2.5	3.6	2.0	4.7	18.5

Witteveen+Bos, Onderzoek naar
complementaire afvalstromen voor e-waste in
Nederland, 10 April 2008



Elements of implementation:

2 Finance

- Finance of recycling by producer
 - according to market share (pay-as-you-throw)
 - at point of sales (pay-as-you-go)
- Finance of recycling by end user
 - Visible fee systems
 - “Invisible” fee systems
- Evaluation
 - Coverage of orphan products?
 - Historic and “new” waste?

Participation

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Enforcement

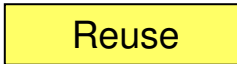
Reuse

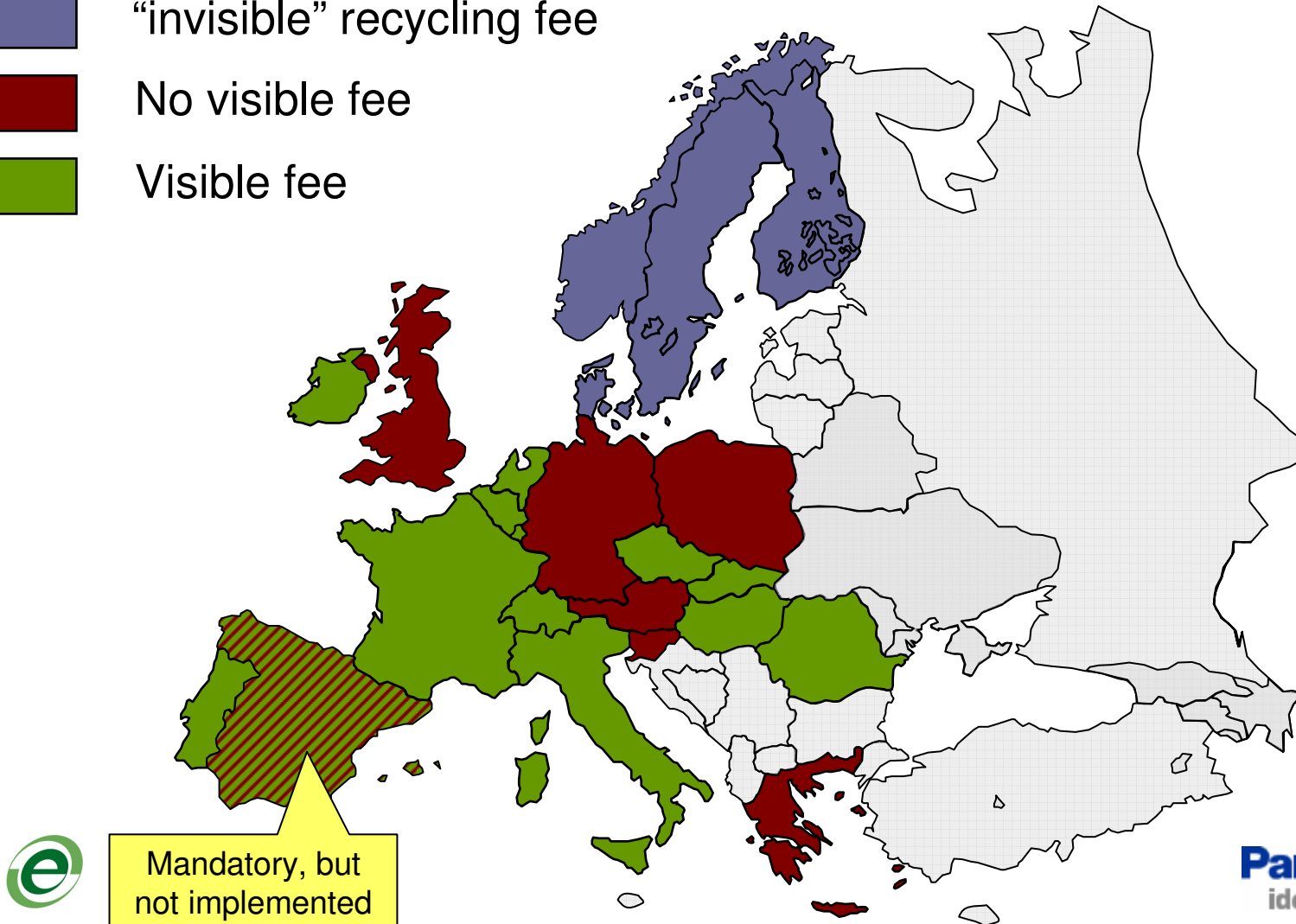
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Elements of implementation: 2 Finance

-  "invisible" recycling fee
-  No visible fee
-  Visible fee

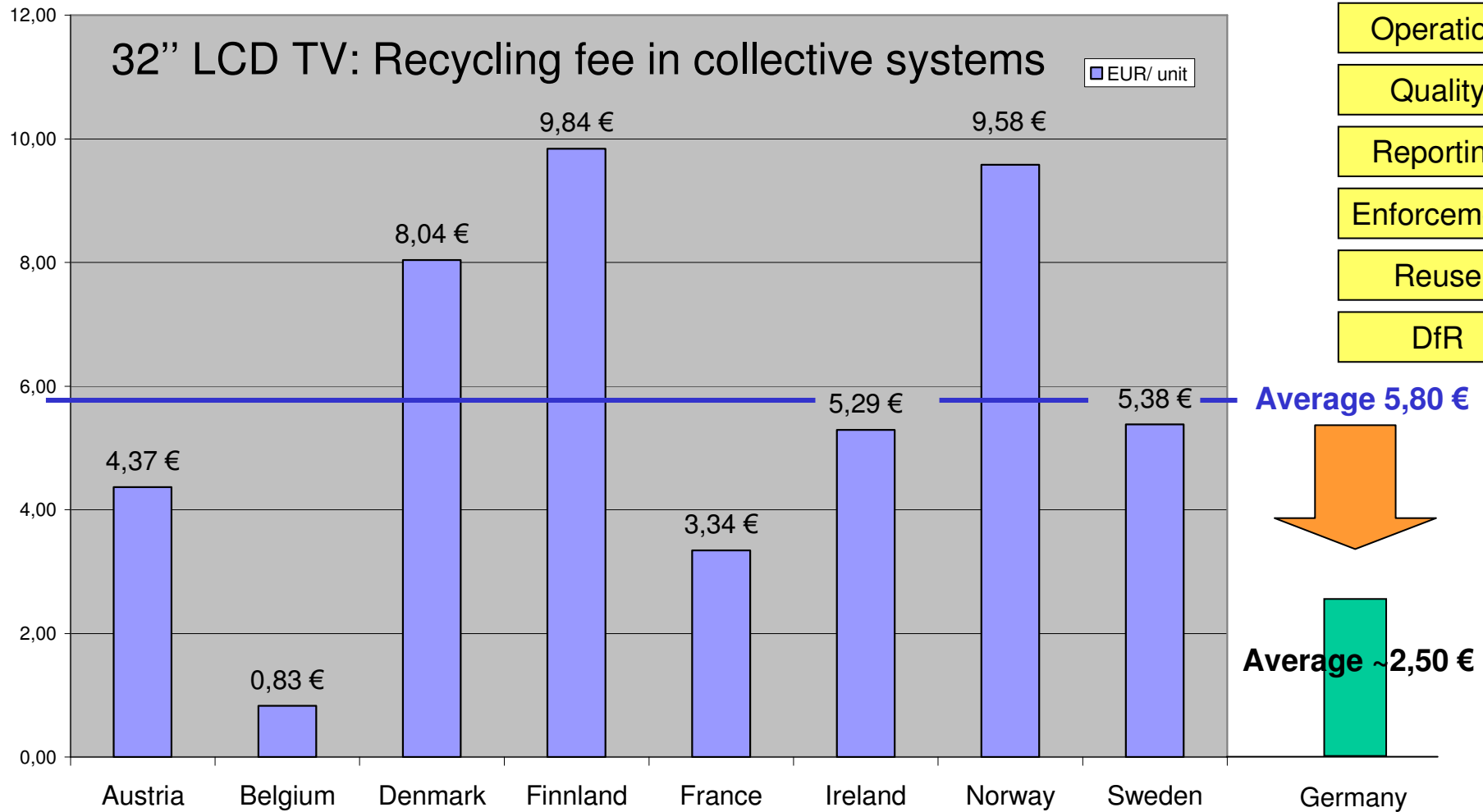
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Mandatory, but not implemented

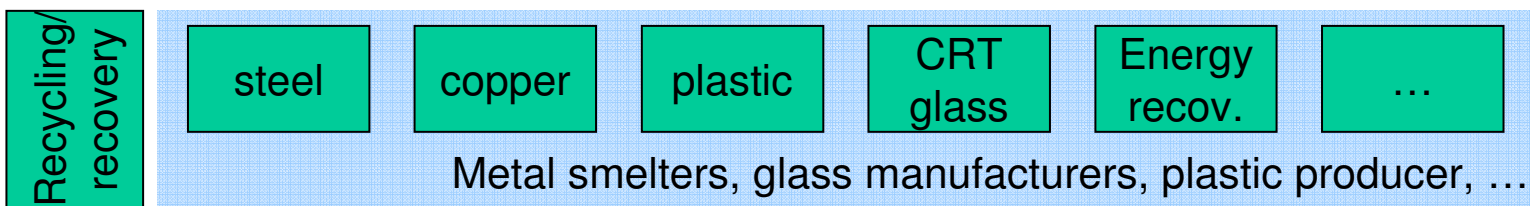
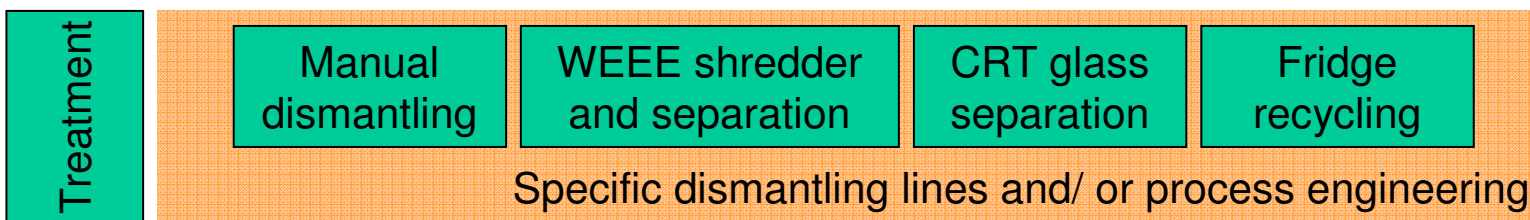
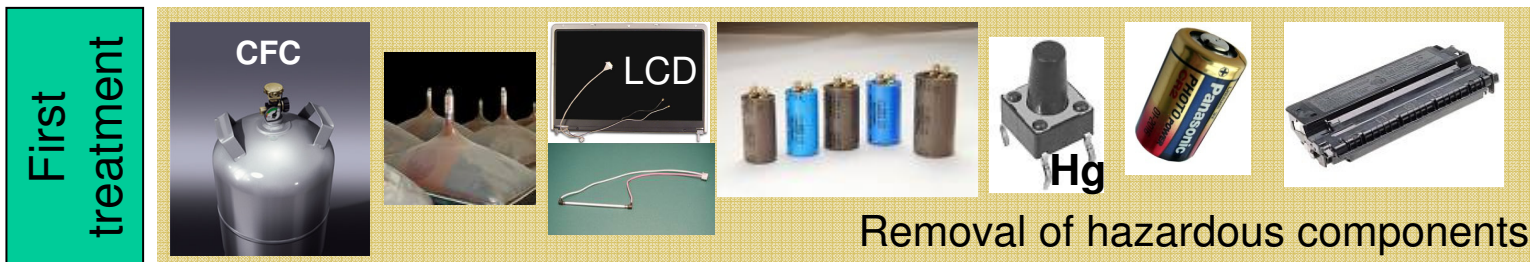
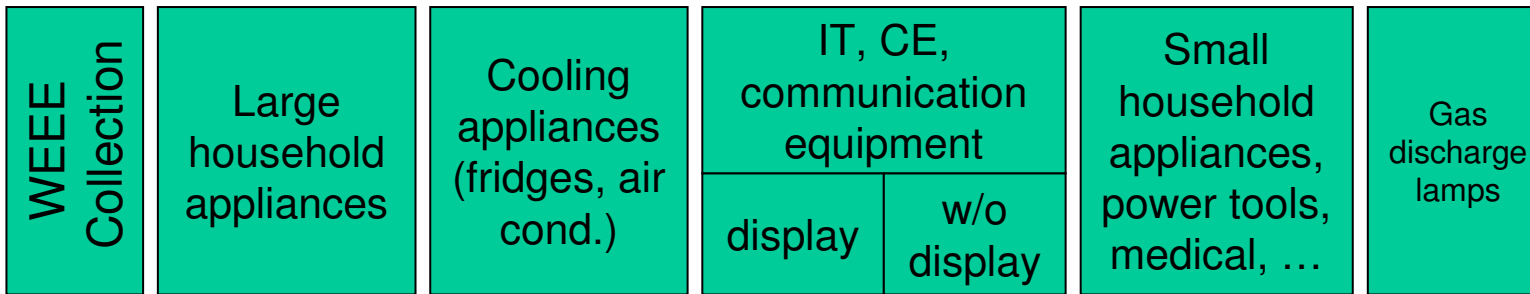
Elements of implementation: 2 Finance

- Participation
- Finance
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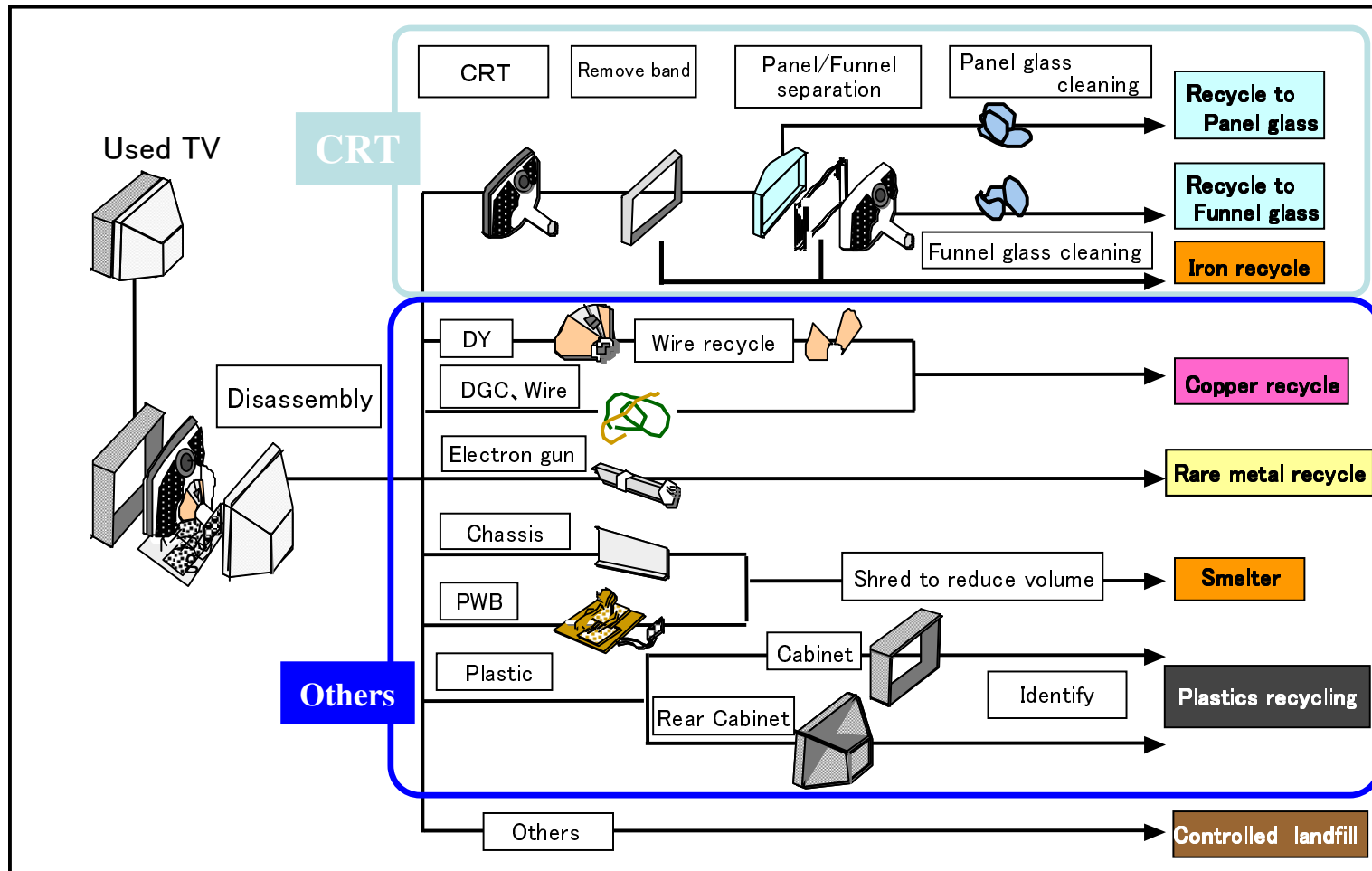
Elements of implementation: 3 Recycling operation

- Participation
- Finance
- Operation
- Quality
- Reporting
- Enforcement
- Reuse
- DfR

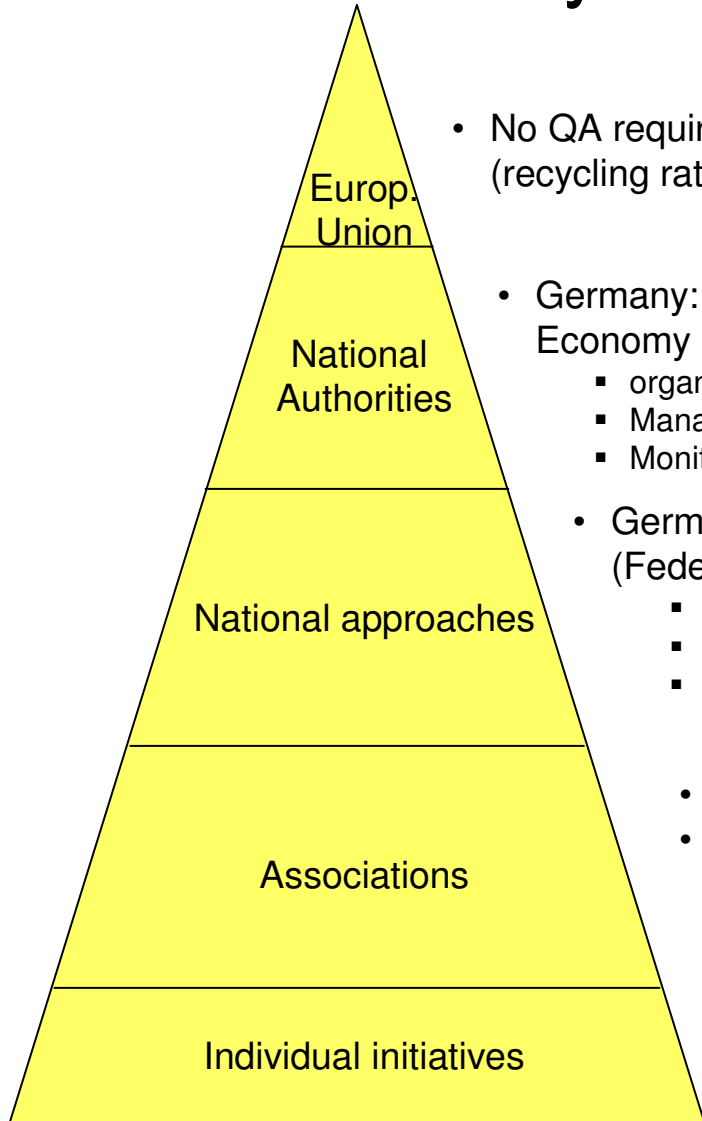


Elements of implementation: 3 Recycling operation

- Participation
- Finance
- Operation
- Quality
- Reporting
- Enforcement
- Reuse
- DfR



Elements of implementation: 4 Quality Assurance



- No QA requirements, only minimum treatment goals (recycling ratio, components to be removed)
- Germany: Certified recycler under “German Recycling Economy Law” (KrW/AbfG)
 - organization, facilities, tasks
 - Management, Staff
 - Monitoring and certification
- Germany: Guidance on WEEE, developed by LAGA (Federal Working Group on Waste)
 - Requirements on collection and transport
 - Treatment requirements
 - Recycling processes: products and specific components
- EERA (European Electronics Recyclers Association)
- ICER (Industry Council for Electronic Equipment Recycling): Accreditation Scheme for UK recyclers
- Quality assurance scheme of Panasonic/ ENE (recycling pilot tests on recycling ratios and management of hazardous substances)

- Participation
- Finance
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- Reporting
- Enforcement
- Reuse
- DfR

Elements of implementation: 5 Reporting

- Necessary Reporting by producer (by law):
 - WEEE put on their market, collected, reused, recycled and recovered, and on collected waste exported
 - Recovery rate per product category
 - Component, material and substance reuse and recycling rate per product category
- Current status
 - No legally binding instructions on rate calculation

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Elements of implementation: 6 Enforcement

- WEEE Enforcement focus:
 - Producers registered and participate in schemes
 - Monitoring of treatment results at recycling facilities
 - No illegal treatment or export
- National Environmental Agencies (responsible in most cases)
- Status:
 - Registration issues: some incidents
 - Monitoring issues: no major activities
 - Export issues: no major activities

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Elements of implementation: 7 Incentives for reuse

REUSE level 1:
Exceeding the lifetime of a product, e.g. by refurbishment and implemented inside a leasing system

REUSE level 2:
After discarding a product (product becomes waste), it will be tested and maybe repaired, and then sold.

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- Decision: ecological, economical and market criteria
- Incentives for producers
 - Second business with refurbishment (IT, capital goods)
 - Develop new markets for products
- Obstacles for producers
 - Innovation speed and technological obsolesces
 - Product liability
 - Conflicts with original business purpose



Elements of implementation: 8 Incentives for DfR

- Economic incentives:
 - B2C: “Collective” recycling of WEEE → minimum product weight is the only cost reduction potential
 - B2B: individual recycling measures (contracts), producer could benefit from decreased recycling cost
- Ecologic incentives:
 - Synergy with all life-cycle phases of the product
→ DfR one aspect of EcoDesign (EuP Directive)
- Market incentives:
 - Product assessments by NGOs or trade publications include environmental criteria
 - Better image for “greener” producers

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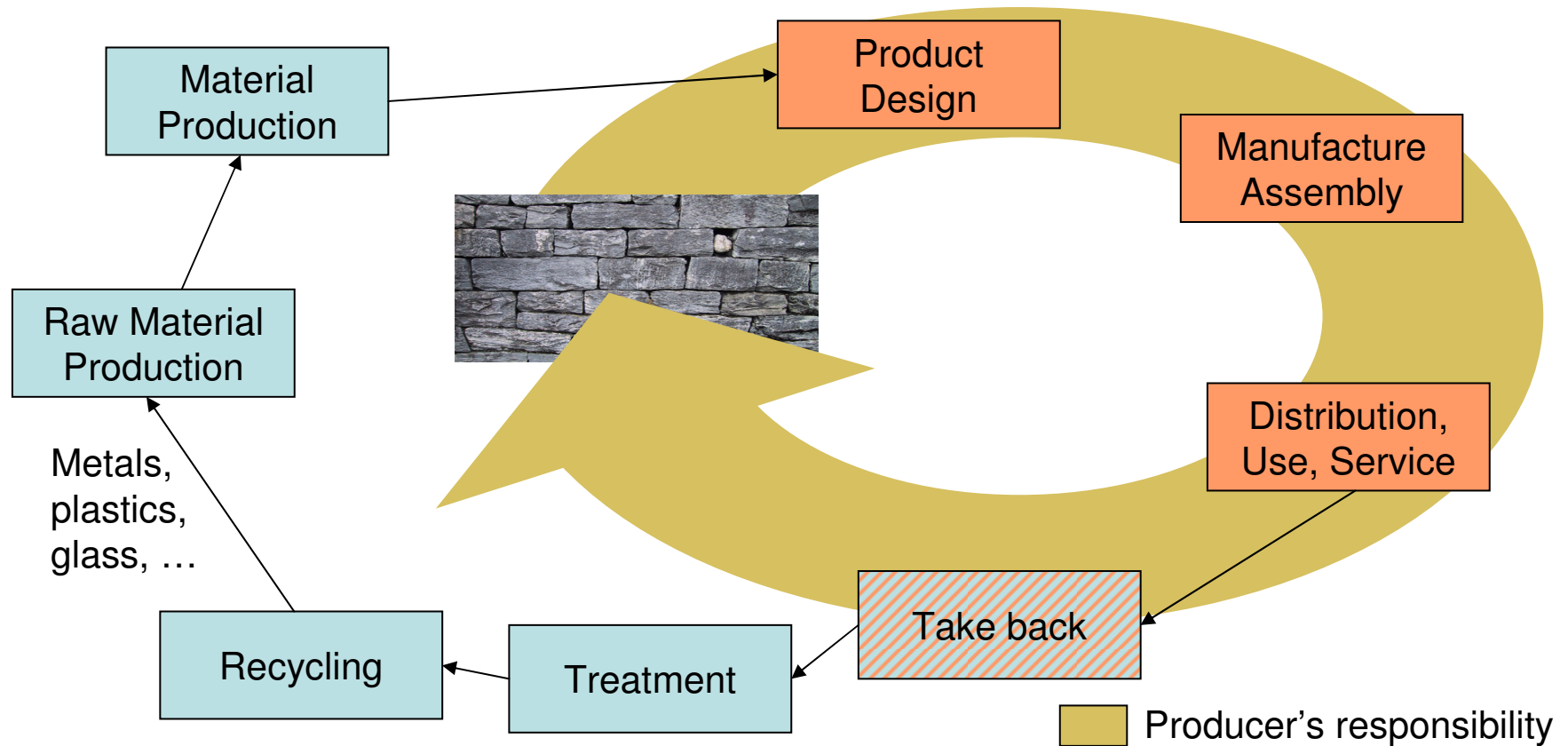
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Producer Responsibility options: IPR-1: Closed material loops



Producer Responsibility options:

Extended definition of IPR-1 leads to IPR-2

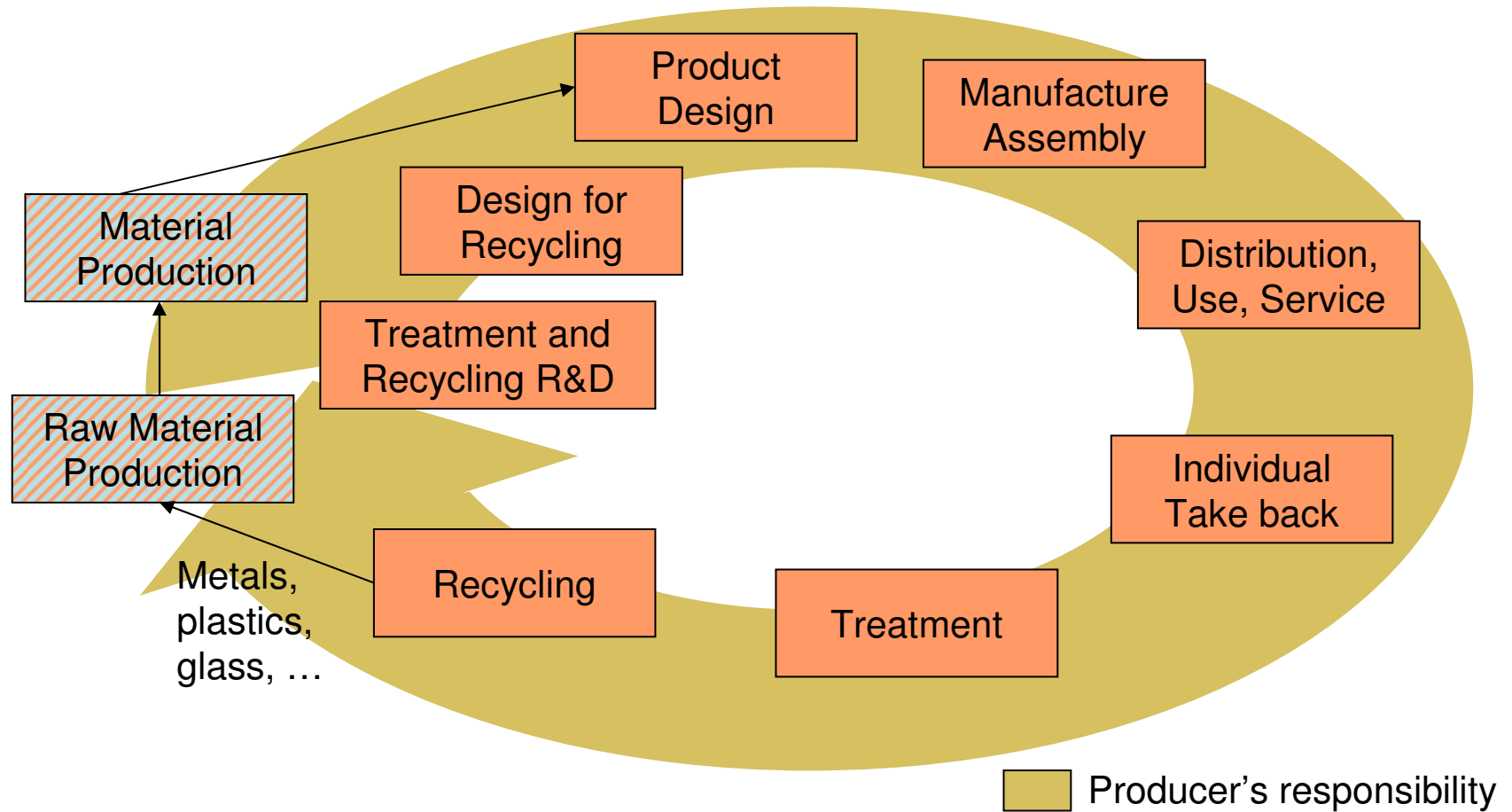
- IPR-2 aims to use the following conditions
 - Producer becomes owner of “his” product again
 - From “collective responsibility” towards property = resource
 - Producer can develop product-specific recycling technologies, in order to reuse secondary material from EoL products
 - Design for Recycling (DfR) can improve reusability, better recyclability as well as the availability of spare parts

Full individual responsibility → IPR-2



Producer Responsibility options:

IPR-2: Closed loops with material ownership



Requirements for IPR-2

- Stable waste collection w/o cherry picking
- Infrastructure for brand-specific collection of waste products
- Producer's accessibility to waste materials
- Producer's ownership of brand-specific wastes
- Producer's accessibility to treatment and recycling
- Producer must be manufacturer on local level
- Closed loop to producer's own manufacturing processes

Remark:

Best example of IPR-2 is the closed loop system of electronics manufacturers in Japan.



Comparison: EcologyNet Japan and Europe



EcologyNet Japan

EcologyNet Europe

Participation at recycling systems	Fixed coverage of brands	Freedom of choice for producers
Finance	End-user when discard product	Producers pay per recycled ton
Recycling operation	By contracted, selected recycler	By contracted, selected recycler
Quality Assurance	By own QA system (twice a year)	by own QA system (annually)
Reporting	By EcologyNet on behalf of prod.	Report prepared by EcologyNet
Enforcement	By government/ local authorities	Not established sufficiently
Incentives for reuse	-	-
Incentives for DfR	Yes (brand specific collection)	-



Recommendation

- Implementation of a harmonised take-back and recycling system
 - Scope of products
 - Collection
 - Payment/ Invoicing
 - Reporting
- Clear roles and responsibilities of stakeholders (manufacturers, importers, dealers, municipalities, recyclers, authorities)
- Strict enforcement

