



PV CYCLE

Motivation, Objective and Benefits

3rd International Thin Films workshop

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European Union Waste Policy



Principle: The industry must be responsible for its products

- WEEE: Directive 2002/96/EC on Waste Electrical and Electronic Equipment
 - RoHS: Directive 2002/95/EC on the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment
- Both directives entered into force on 13 February 2003 and require Member States to transpose their provisions into national law by 13 August 2004



WEEE Directive



- **Objectives:** The priority of this directive is the prevention of production of wastes from electrical and electronic equipment (WEEE) and their reuse, recycling and recovery of such wastes so as to reduce disposal.
- **Each producer is responsible for financing the collection, treatment, recovery and disposal of its own products**
- **The scope of the Directive is defined in Annex IA/IB: PV modules are not listed in Annex IA/IB**
- **Legal basis: Article 175 EC Treaty**



Revision of the WEEE Directive



- Two studies have been organized by the EC in order to prepare the revision of the WEEE directive (2008):
 - **“2008 Review of Directive 2002/96/EC WEEE”**:
Contractor: Institute of Environment and Human Security of the United Nations University (UNU-EHS), appointed in September 2006.
 - **The producer responsibility principle of Directive 2002/96/EC WEEE**
Contractor - ÖKOPOL – Institut für Ökologie und Politik GmbH - on December 2006



ROHS Directive



RoHS: Directive 2002/95/EC on the Restriction on the Use of Certain Hazardous Substances in Electrical and Electronic Equipment

- Member States shall ensure that, from 1 July 2006, new electrical and electronic equipment put on the market does not contain lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls (PBB) or polybrominated diphenyl ethers (PBDE).
- Legal Basis: Art. 95 of the Treaty



Review of the ROHs Directive



Possible objects of the review: scope of the directive, substances covered

- May 2007: Consultation with stakeholders- end of the first stage.
- 2008: Consultation with stakeholders on options for the revision of the Directive
- Late 2008: expected presentation of the legislative proposal for the review of the ROHs directive

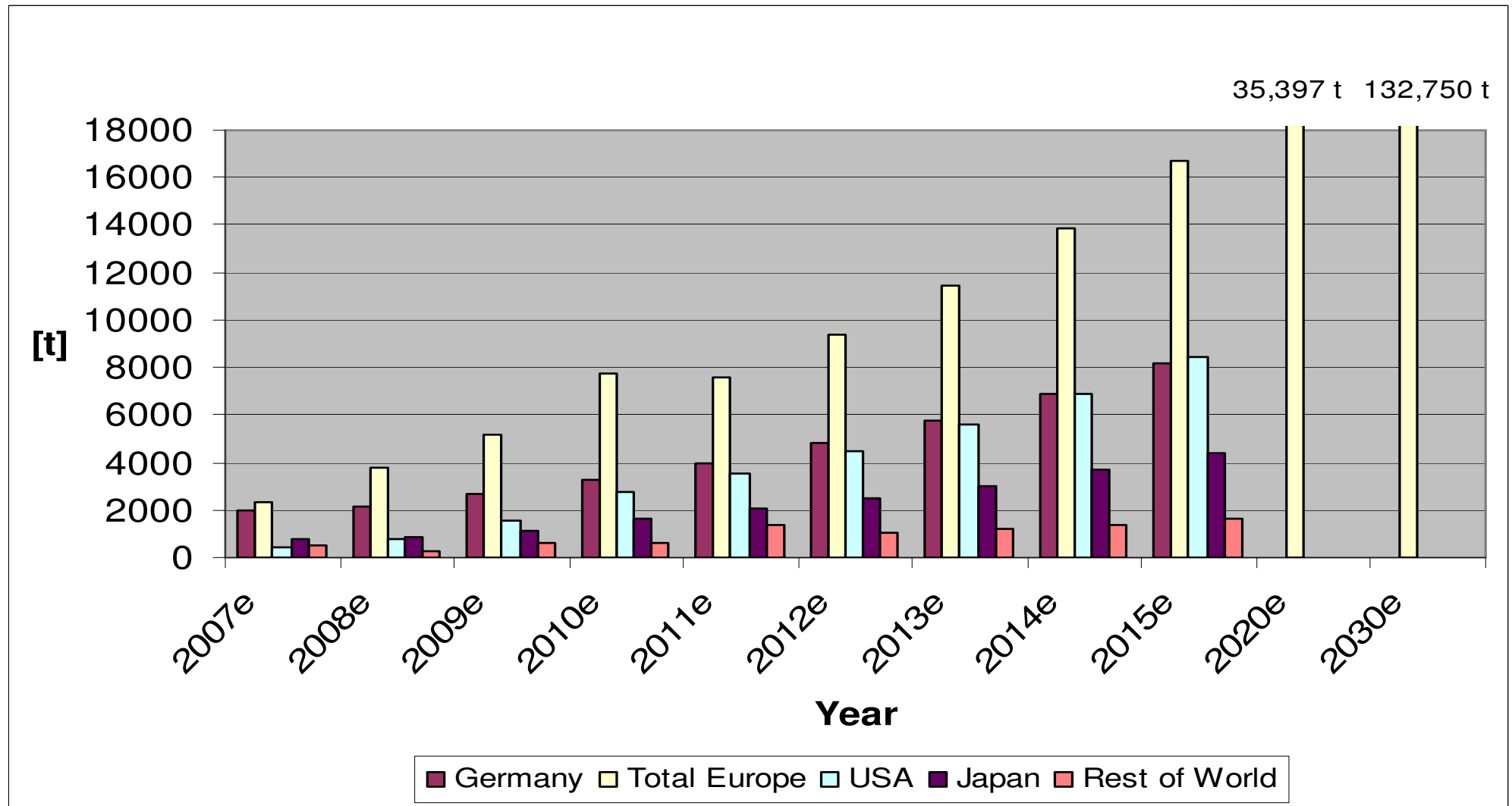


Motivation to found PVCYCLE

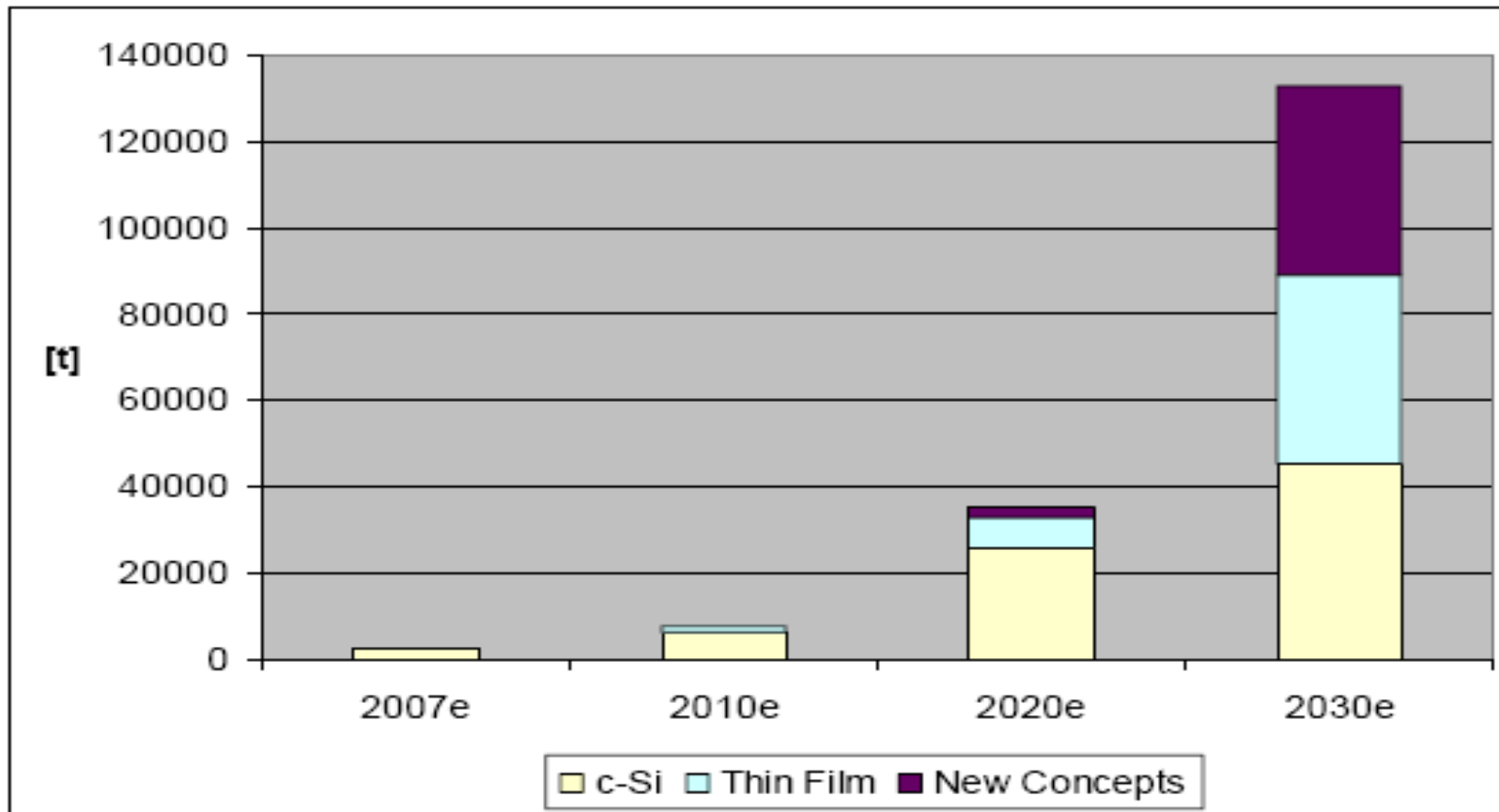


- **EU legislation and transposition to the national laws**
- **Environmental producer responsibility**
- **Maturity of the industry**

Waste Forecast By Weight



Waste Forecast



(source: Solar World)



Environmental targets

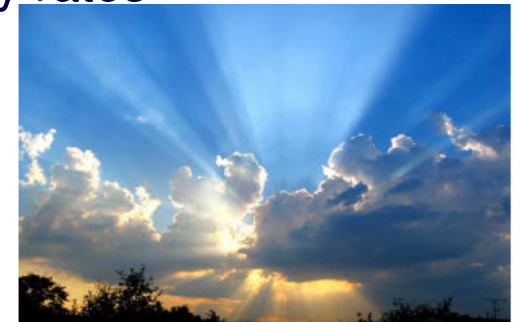


As a renewable energy source, PV industry must contribute with convincing solutions to the protection of the environment by promoting increased use and sustainability of PV technology.

The PV industry must meet the global climate protection requirements.

Necessary:

- Sustainable solutions along the whole value chain
- General waste management and recycling policy
- guaranty the highest economically feasible collection and recovery rates
- appropriate treatment of waste PV modules





PV CYCLE Association



- Founding of PV CYCLE Association 2007-07-05 in Brussels
(EPIA & BSW with the support of 6 PV companies at the beginning)
- The association is established as a nonprofit international management system
- Organized under private law
- financed by the fees of its members



Aims



- Structuring of best paths and methodologies for waste management of PV modules under consideration of national and international legislation
- Elaborate immediately a voluntary take back and recovery system for PV modules
- Evaluation of best practice standards for logistic structures
- Support of research projects (e.g. IEA PVPS Task 12)
- Ensure regularly monitoring
- Public relations in the field of sustainable production and PV waste treatment
- Collection and publication of environmental relevant data



Benefits



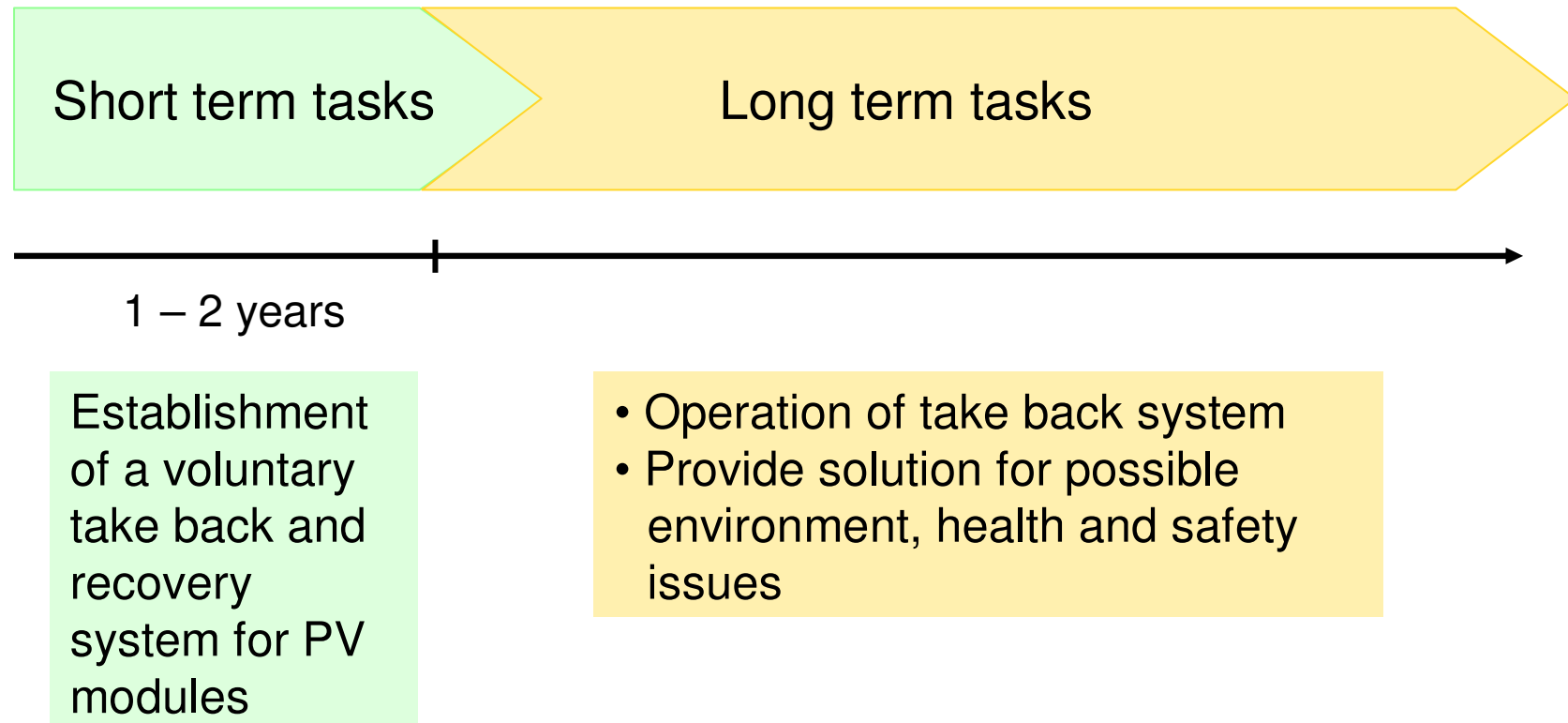
- Secure the positive image of PV and therefore the public support of the PV market
- Avoid unfavorable and expensive waste regulations

Revision object of two studies, results have been published on 15th november 2007:

None of these two studies suggest the inclusion of PV modules in the scope of the WEEE Directive.

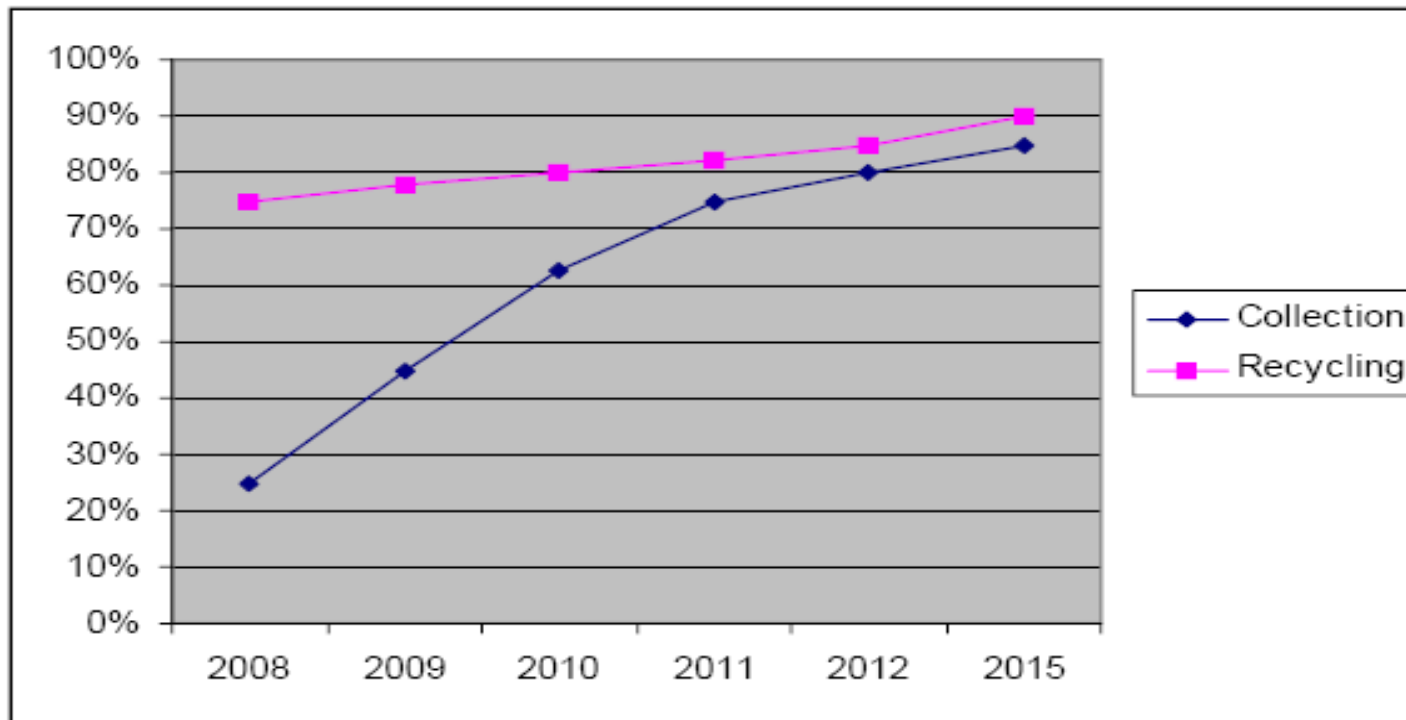


Tasks



Long term tasks

- Clearly competitive advantage in the market for PV CYCLE members
- Preparation of verifiable databases of PV issues
- Realization of highest collection and recovering rates (example):

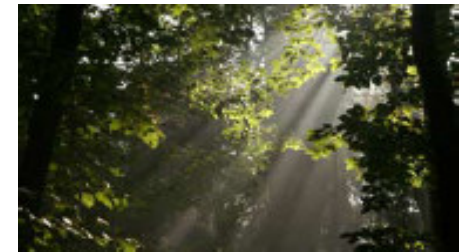




Next Activities



Fill the position of the general secretary	2007-end
Formation of working groups	2007-end
Establishment of the take back system	2008
Start of collection	2008





Members



All PV companies with accountability for photovoltaic waste, (e.g. manufacturers, importers and suppliers along the entire value chain of PV products) can become members of the association.

High market share of PV manufacturers



Current Members:

- Avancis
- BP Solar
- Conergy
- First Solar
- Isofoton
- Kyocera
- Q-Cells
- Sanyo
- Schott Solar
- Scheuten Solar
- Sharp
- Solarfabrik
- Solarworld
- Solon AG
- Solyndra
- Sulfurcell
- Sunways
- Würth Solar
- **EPIA**
- **BSW**
- **ECN**



Thanks for your Attention

Further information: www.pvcycle.org





History



- 2003** First publications on waste treatment, WEEE, life cycle issues
voluntary take back systems with kind support of JRC, IES and
EPIA
Ökopol Study on waste treatment of modules
- 2004** Workshops on waste, LCA, WEEE and take back systems
Ongoing work in SP6 of EU project “CRYSTAL CLEAR“
- 2005** First PV CYCLE initiative supported by EPIA and BSW,
creation of working group PV CYCLE
First initiatives for IEA PVPS Task 12
- 2006** Drafts of Statutes and Business Plans
- 2007** Study PVCYCLE supported by BMU, Germany
Foundation of PV CYCLE Association



WEEE Directive



- **Most important provisions**
- **Art. 2: scope of the directive**
- **Annex I A: categories of EEE that fall within the scope of the directive**
- **Annex I B: list of products belonging to categories in Annex IA to which the Directive applies**
- **Art. 5: rate of separate collection of at least four kilograms on average per inhabitant per year of WEEE from private households**
- **Art. 6: treatment**
- **Art. 9 financing of WEEE collection and treatment**



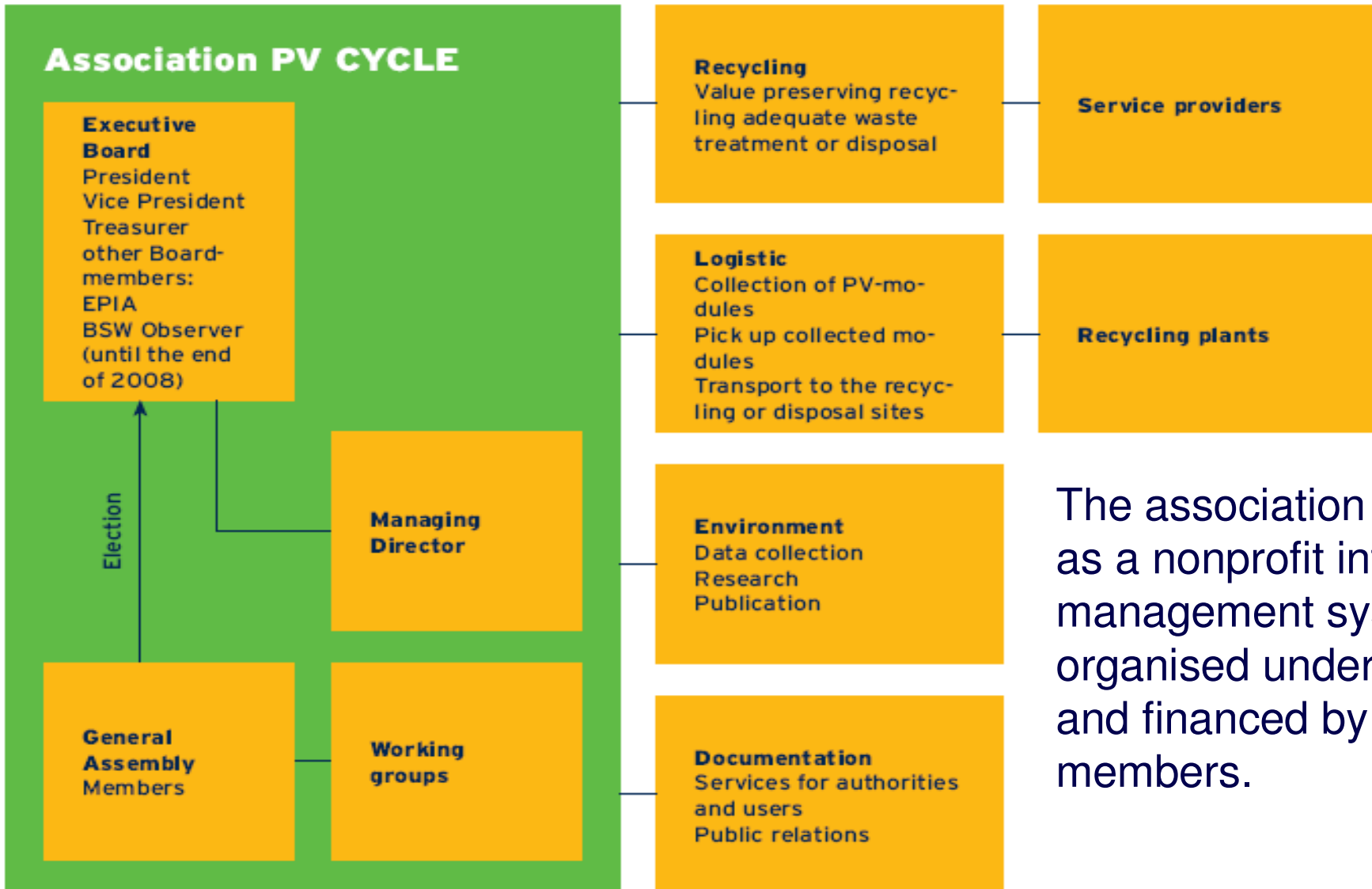
Structure



Legislation

Authorities

Tasks:



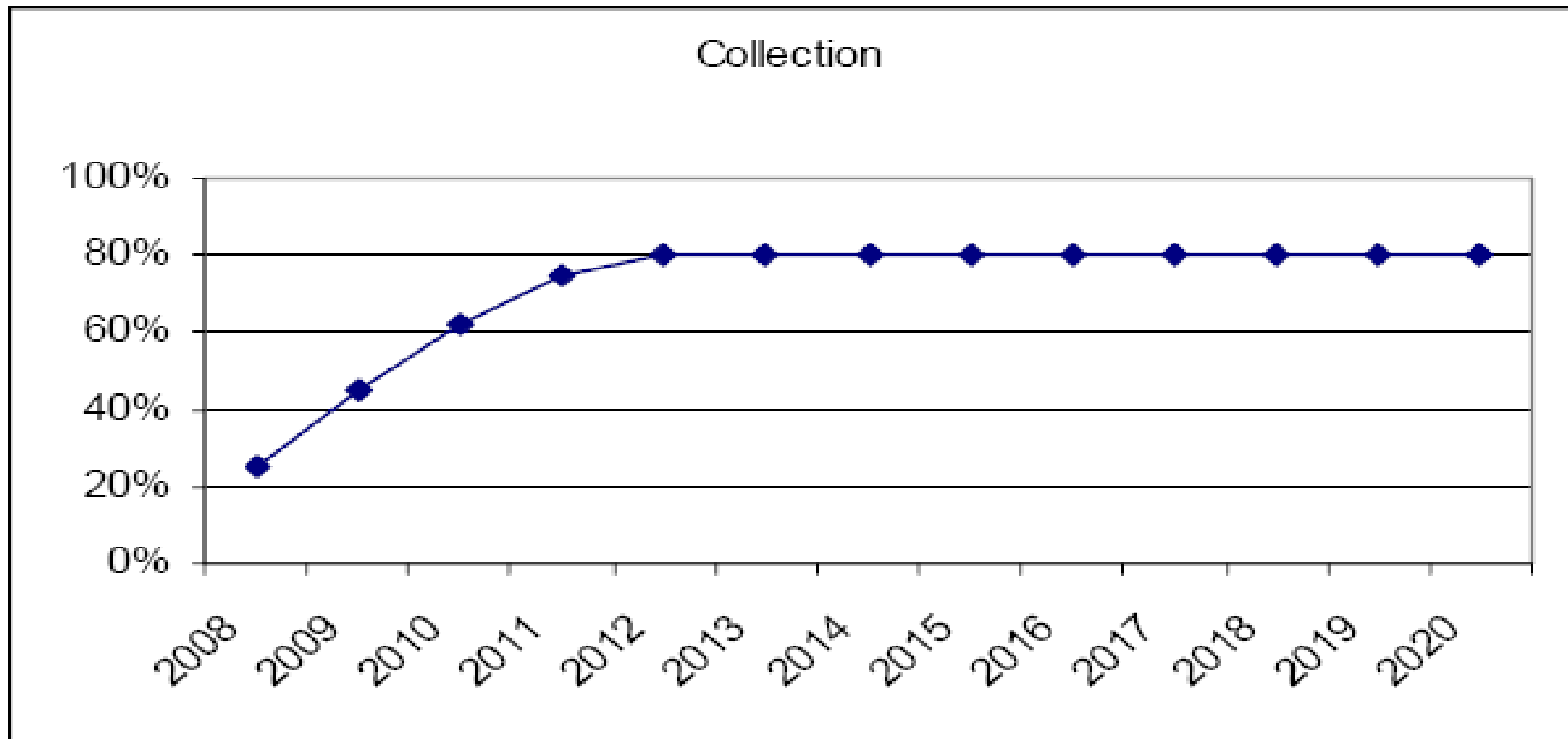
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PV CYCLE



- Collection/Recycling Targets (Collection Rate)

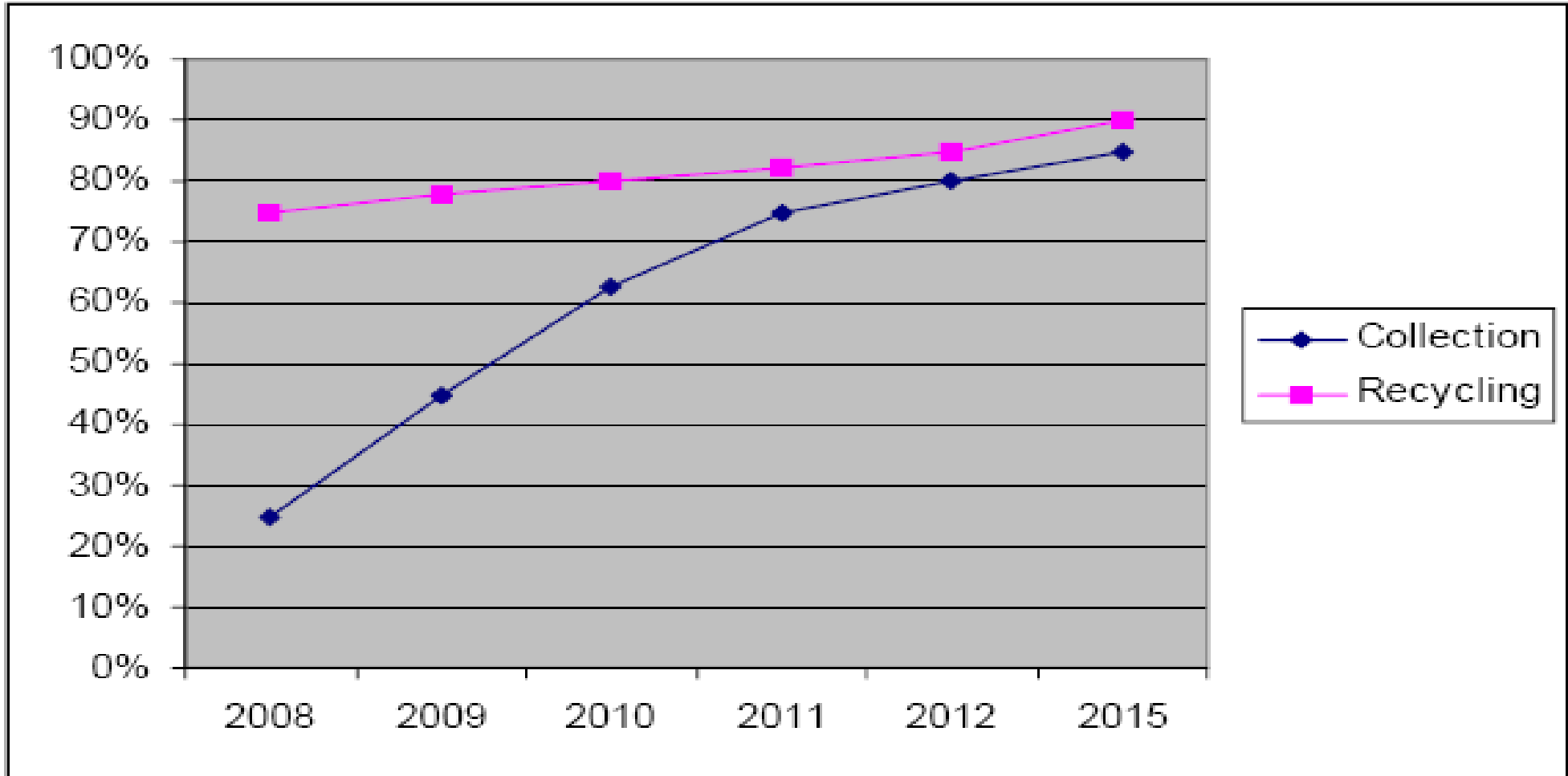




PV CYCLE



- Collection and Recycling Targets (Recovery Rate- Example)



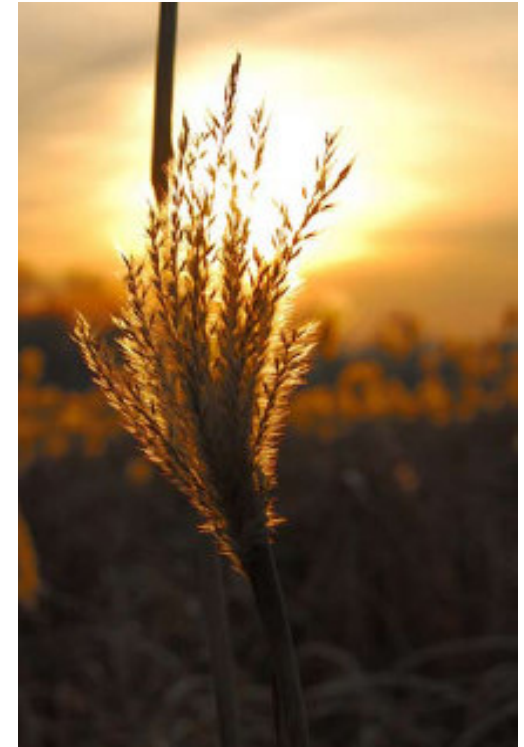


Founding members



- Avancis
- Conergy
- Isofoton
- Schott Solar
- Solarworld
- Sulfurcell

- EPIA
- BSW





Objectives



- **Promote the protection of the climate and the environment in enhancing increased and sustainable use of PV technology.**
- **Create a positive environment for the ongoing growth of the PV industry**
- **Install an overall waste management policy**
 - guarantees highest economically feasible collection and recovery rates
 - appropriate treatment of waste PV modules.



Next Tasks



- **Implementation of the take-back system**
 - Concept development and implementation
 - Call for tenders, selection of the service providers
- **Operation of the take-back system**
 - System management
 - Scheduling and controlling the take-back volumes and waste volumes
 - Controlling the service provider
 - User support
 - Auditing and certification of the system
 - Continuous enhancement of the system



WEEE Directive

Current development



WEEE will be revised in 2008

- Possible object of the revision: scope
- Procedure: codecision.
- Key actors: Parliament, Commission, Council



ROHS Directive



- **Current Developments**
- **Review of the Directive**
- **Possible objects of the review: scope of the directive, substances covered**



Current Activities

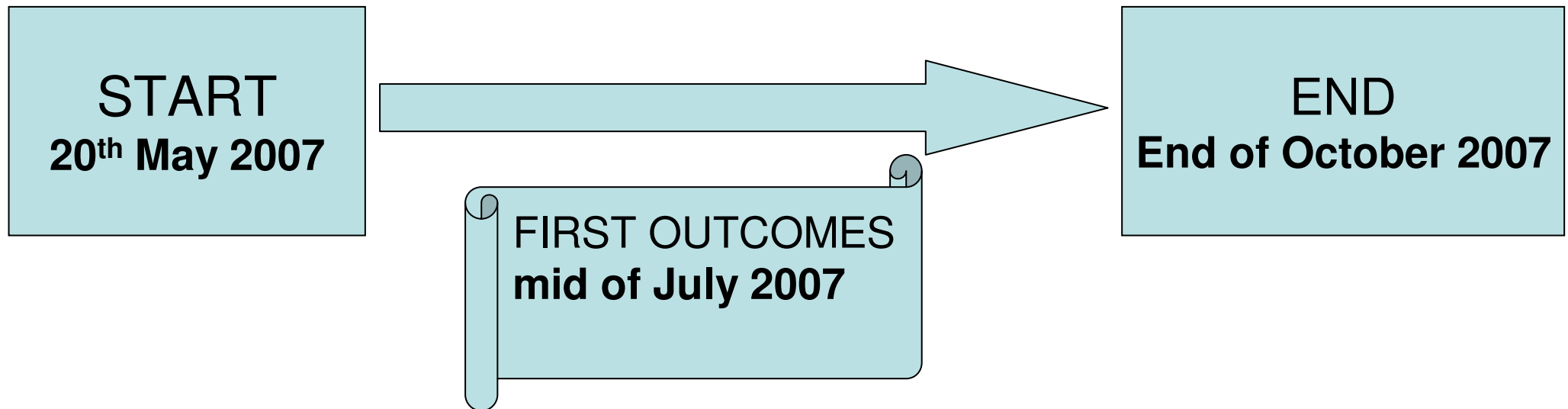


Commun agreement of EPIA-BSW members to do:

- Assessment to identify which are the most appropriate solution for the PV industry for waste treatment (take back system).
- Lobbying Activities



Survey Status



- **Co-financed by EPIA, BSW and BMU**



Survey Structure



1. Background and framework.
 - PV Market, technologies, industry, Policy framework, WEEE&RoHs, take back systems, possible reaction
2. Recycling processes and techniques
 - Cristalline cells, thin film, perspective
3. Option: Voluntary system
 - Take back system, recovery system, carrier organization, legal and juridical aspects
4. Option: WEEE
 - Legal consequences, etc.
5. Options
 - Business as usual with WEEE and without WEEE
6. Overall summary and recommendations (30/10/07)



Survey Partners



- **EPIA**
- **BSW**
- **Ökopol**
- **Dörte Fouquet**
- **ZSW**
- **Deutsche Solar**
- **Sharp**
- **Isofotón**
- **First Solar**
- **Würth Solar**



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