



HTWT - High Technology Waste Treatment
LIFE10 ENV/ES/000470



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Project description:

Background

There are no suitable technological solutions for the recovery and recycling of materials or treatment of potentially hazardous wastes from end-of-life liquid crystal displays (LCDs), light-emitting diodes (LEDs), plasma displays and photovoltaic panels. LCDs contain mercury, a heavy metal that poses a significant hazard to human health at the end of the product's life. Plasma displays contain a highly toxic resin, which is very environmentally hazardous. Rapid technological development of television screens and computer monitors means that technologies are introduced and replaced often over short periods of only a few years. Consequently, there are now a large number of LCD and plasma displays reaching their end-of-life that need appropriate processing. Processing must be able to deal with LCD display tubes which contain mercury and risk breakage during the dismantling process.

Objectives

The HTWT project aimed to develop a comprehensive management plan for the collection and treatment of end-of-life screens and displays, and to develop an industrial prototype for the treatment of LCDs, LEDs, plasma displays and photovoltaic panels. This was to be tested on different kinds of screen and displays in order to identify suitable treatment processes and to deliver reusable materials.

The technology that HTWT planned to use was an induction coil that would transmit heat to the metallic elements of the display, such as connectors, plates, terminals, screws, cables and tracks, in order to melt the thermoplastic components (insulation, adhesives). The melting of the thermoplastic materials would facilitate the separation of the components, cutting the time required to disassemble the screens and reducing the risk that environmentally sensitive components would be damaged. The project hoped to increase the recovery and recycling of materials from displays and screens, thus reducing the amount of hazardous waste sent to landfill and reducing the consumption of raw materials in the electronics sector.

Results

The HTWT project had two main objectives: development of a comprehensive management plan for the collection and treatment of end-of-life screens and displays, and development of an industrial prototype for the treatment of LCDs, LEDs, plasma displays and photovoltaic panels.

The management plan was not developed. The project focused on the construction of the industrial prototype and related awareness-raising activities.

Studies were carried out to establish the current treatment techniques used for end-of-life screens and displays, and to identify technical requirements for the prototype. Two versions of the prototype were developed and tested, but these failed to produce the expected results.

The main outcomes of the project were:

- Construction and testing of a prototype that proved suitable for the treatment of LCD and plasma displays with ferromagnetic housing;
- For TV displays with aluminium housing, the results obtained with the prototype were not satisfactory. Tests showed that it would be necessary to increase the energy through the induction coil prototype in order to treat the aluminium housing. This would have required further technical testing to determine the environmental viability of such treatment for 100% aluminium housings. This additional testing was beyond the project's scope;
- The prototype was not effective for the treatment of photovoltaic panels. No satisfactory results were obtained in terms of treatment of this electronic waste;
- No results were provided for end-of-life treatment of LED displays.

The project therefore fell short of its objective of developing an industrial prototype able to provide end-of-life treatment for LCDs, LEDs, plasma displays and photovoltaic panels.

Further information on the project can be found in the project's layman report and After-LIFE Communication Plan (see "Read more" section).

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Environmental issues addressed:

Themes

Waste - Waste from Electrical and Electronic Equipment (WEEE)

Keywords

waste treatment, electrical industry, hazardous waste

Target EU Legislation

- Waste
- Directive 2012/19 - Waste electrical and electronic equipment (WEEE) (04.07.2012)

Natura 2000 sites

Not applicable

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Beneficiaries:

Coordinator	Conselleria de Infraestructuras Territorio y Medio Ambiente de La Comunidad Valenciana
Type of organisation	Regional authority
Description	The beneficiary is the Environment ministry - Consellería de Medio Ambiente - of the regional government of Valencia, Spain.
Partners	Fundación ECOTIC, Spain Recytech Iberia, Spain Electro-coord Hungary GH Ingeniería, Spain Fundación INTRAECO, Spain Fundación Comunidad Valenciana-Región Europea

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Administrative data:

Project reference	LIFE10 ENV/ES/000470
Duration	15-SEP-2011 to 01-SEP -2014
Total budget	1,367,500.00 €

EU contribution 659,957.00 €
Project location Comunidad Valenciana(España)

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Read more:

File Title: "Tus residuos de aparatos eléctricos y electronicos : no son basura participa en su reciclado [Folder]" (795 KB) Editor: HTWT No of pages: 2

Leaflet Title: "Tus residuos de aparatos eléctricos y electronicos : no son basura participa en su reciclado" (2.87 MB) Editor: HTWT No of pages: 2

Leaflet Title: "Project's invitation" (769 KB) Year: 2014 Editor: HTWT No of pages: 2

Leaflet Title: "Soluciones para el tratamiento integral de los residuos generados por plasmas, LCDs y paneles fotovoltaicos" (4.83 MB) Author: Carmen De Rosa Editor: HTWT No of pages: 2

Poster Title: "Camino que recorren los raee : cuando los depositamos correctamente" (1.94 MB) Editor: HTWT No of pages: 3

Poster Title: "Waste of electrical and electronic equipments is not trash take part in its recycling" (600 KB) Editor: HTWT No of pages: 1

Project web site [Project's website](#)

Project web site - 2 [Project's Twitter page](#)

Project web site - 2 [Project's Facebook page](#)

Publication: After-LIFE Communication Plan Title: After-LIFE Communication Plan No of pages: 8

Publication: Guidelines-Manual Title: "Guia de buenas practicas : para la gestion de residuos de aparatos eléctricos y electronicos en el hogar" (9.86 MB) Editor: HTWT No of pages: 12

Publication: Guidelines-Manual Title: "Guide of good practices : for the management of waste of electrical and electronic equipments at home" (10.1 MB) Editor: HTWT No of pages: 12

Publication: Guidelines-Manual Title: "Guide of good practices for the transport and storage of Plasma Screens, LCD and Photovoltaic panels" (11.9 MB) Editor: HTWT No of pages: 28

Publication: Guidelines-Manual	Title: "Guia de buenas practicas : para el transporte y almacenaje de Pantallas de Plasma, LCD y Paneles fotovoltaicos" (6.62 MB) Editor: HTWT No of pages: 28
Publication: Layman report	Title: Layman report No of pages: 19
Slides Presentation	Title: "De gestion integral de pantallas LCD, Plasma y paneles solares fotovoltaicos fuera e uso" (7.78 MB) Editor: HTWT No of pages: 39
Slides Presentation	Title: "Proyecto europeo LIFE10 ENV/ES/000470 de gestion integral de pantallas LCD, Plasmas y paneles solares fotovoltaicos fuera de uso" (2.78 MB) Editor: HTWT No of pages: 9
Slides Presentation	Title: "Tus residuos de aparatos eléctricos y electronicos : No son basura participa en su reciclado" (11.3 MB) Editor: HTWT No of pages: 28
Slides Presentation	Title: "European project LIFE10 ENV/ES/000470 for the integral management of LCD screens, Plasmas and photovoltaic solar panels out of use" (2.11 MB) Editor: HTWT No of pages: 9
Video link	"Los residuos de aparatos eléctricos y electrónicos (RAEE), no son basura: Participa en su reciclado! = Waste of Electrical and Electronic Equipments (WEEE) are not garbage: Take part in their recycling!" (EN-ES - 6')
Video link	"Soluciones para el tratamiento integral de los residuos generados por plasmas, LCDs y paneles fotovoltaicos" (ES - 3')

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