

# End-of-life of used photovoltaic modules a financial analysis

Is it economically feasible to invest in industrial photovoltaic (PV) systems?

Photovoltaic (PV) systems are becoming a relevant electricity source, characterised by a growing trend in the last years. This paper analyses the economic feasibility of investments in industrial PV... Cumulative photovoltaic (PV) power installed in 2016 was equal to 305 GW.

What is life cycle analysis of metals in emerging photovoltaic technologies?

Life cycle analysis of metals in emerging photovoltaic (PV) technologies: a modeling approach to estimate use phase leaching. *J. Clean. Prod.*, 186 (2018), pp. 632 - 639  
Organizational forms for knowledge management in photovoltaic solar energy industry

Do EOL PV modules perform well at the end of their useful life?

Although the previous review studies investigated and discussed some aspects of the EoL PV modules, no systematic quantitative reviews have been performed regarding the current status of global performance on the managing of PV modules at the end of their useful life.

What are the advantages of photovoltaic (PV) modules?

The generation of clean and environment-friendly electricity without the depletion of natural resources is a valuable advantage of photovoltaic (PV) modules (Chen and Pang, 2010; Solangi, Islam et al. 2011; Celik et al., 2018). Production and installation of PV cells have seen significant growth all around the world (Xu et al., 2018a).

How does life cycle analysis improve the recovery strategies of EOL PV materials?

Life cycle analysis improves the recovery strategies of EoL PV materials by estimation of the required energy for recovery, recycling and transportation of the PV waste. This results in minimization of energy consumption and development of better infrastructure (Ravikumar et al., 2016).

How has the photovoltaics industry changed over the past 15 years?

The Photovoltaics (PV) industry has grown rapidly over 15 years. As the number of PV installation sites increases, the amount of the end-of-life PV products will subsequently increase. Therefore, an... Circular solar: Evaluating the profitability of a photovoltaic panel recycling plant.

End-of-Life of used photovoltaic modules: A financial analysis. Article. Jul 2015; ... The estimated cost of recovering each element from end-of-life PV modules and reusing it in PV manufacturing ...

Semantic Scholar extracted view of "End-of-life PV: then what?" by Kari Larsen. ... End-of-Life of used photovoltaic modules: A financial analysis. F. Cucchiella I. D'Adamo P. Rosa. *Environmental Science, Economics*. ... An energy payback analysis. M. Goe G. Gaustad. *Environmental Science*,

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Engineering. 2014; 96.

Recycling materials from end-of-life devices and products is becoming increasingly a fundamental activity for the sustainable development of nations. With the return from the market of immense quantities of photovoltaic panels at the end of their life, it is essential to foresee processes for recovering and valorizing all the raw materials present in them to avoid wasting ...

Title: End-of-Life of used photovoltaic modules: a financial analysis. Article Type: Review Article. Keywords: Photovoltaic, End-of Life PV, Recycling, WEEE. Corresponding Author: Prof. ...

PV modules which are installed worldwide have a defined lifetime for useful service after which the panels become End-of-Life (EoL) products. An enormous amount of obsolete solar PV modules will be added to the waste stream in the near future. Hence, the EoL photovoltaic waste stream could cause an appalling problem in the future if a holistic management strategy ...

Cucchiella, F., D'Adamo, I., & Rosa, P. (2015). End-of-Life of used photovoltaic modules: A financial analysis. *Renewable and Sustainable Energy Reviews*, 47, 552 ...

Finally, a more effective institutional hierarchy was presented for PV modules end-of-life management, with a set of specific recommendations on actions that can help strengthen PV end-of-life management. ...  
"End-of-Life of used photovoltaic modules: A financial analysis," *Renewable and Sustainable Energy Reviews*, Elsevier, vol. 47(C ...

"End-of-Life of used photovoltaic modules: A financial analysis," *Renewable and Sustainable Energy Reviews*, Elsevier, vol. 47(C), pages 552-561. Yan Li & Ge Wang & Bo Shen & Qi Zhang & Boyu Liu & Ruoxi Xu, 2021. "Conception and policy implications of photovoltaic modules end-of-life management in China," *Wiley Interdisciplinary Reviews* ...

The photovoltaic (PV) industry has a relevant role in terms of energy systems sustainability. The economic and environmental benefits related to its application brought the PV sector to an overall installed power of about 138 GW in 2013 (+24% compared to 2012). The recent update of the European Waste Electrical and Electronic Equipment (WEEE) Directive classifies End-of-Life ...

End-of-Life of used photovoltaic modules: A financial analysis. *Renew Sust Energ Rev.* (2015) R. Deng et al. A techno-economic review of silicon photovoltaic module recycling. ... Researchers at home and abroad are in a degraded utilization state for the recycling of end-of-life photovoltaic modules, and it is urgent to develop new value-added ...

China has become the world's largest market for photovoltaic (PV). Effective management of end-of-life PV components is critical to the sustainable development of renewable energy. However, the scale of PV recycle

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industry is still small in China, and there is a lack of supporting policies and public attention.

With the rapid development of solar energy, the impact of waste solar photovoltaic modules on the environment and resources has been increasingly realised. Bangladesh is projected to install as high as 30 GW solar photovoltaic modules by 2041 from the present state of approximately 1 GW. Large volumes of photovoltaic modules from the present and future solar ...

Ndzibah E, Andrea Pinilla De La Cruz G, Shamsuzzoha A (2022) End of life analysis of solar photovoltaic panel: roadmap for developing economies. IJESM 16(1):112-128. Article Google Scholar Pankadan S, Nikam S, Anwer N (2021) An analysis for management of end-of life solar PV in India. Springer, Singapore, pp 1361-1371.

Title: End-of-Life of used photovoltaic modules: a financial analysis Article Type: Review Article Keywords: Photovoltaic, End-of Life PV, Recycling, WEEE ... This methodology is typically used in financial analysis [11, 52, 53] and permits to consider two important variables: i. the time value of money and ii. the useful life of the plant.

DOI: 10.1016/J.RSER.2015.03.076 Corpus ID: 110420423; End-of-Life of used photovoltaic modules: A financial analysis @article{Cucchiella2015EndofLifeOU, title={End-of-Life of used photovoltaic modules: A financial analysis}, author={Federica Cucchiella and Idiano D"Adamo and Paolo Rosa}, journal={Renewable & Sustainable Energy Reviews}, year={2015}, ...

To this aim, two types (pilot and industrial) of plants are proposed by the authors. The obtained financial results are useful to support future strategic decisions about the PV recycling ...

virtual workshop on June 28, 2021, on photovoltaics system components end-of-life (PV EOL) in order to understand the current state of PV EOL and the technical barriers to sustainable handling of PV EOL. The workshop featured panels and breakout discussion groups with stakeholders from the PV industry, waste management industry, research ...

The cumulative global photovoltaic (PV) waste reached 250,000 metric tonnes by the end of 2016 and is expected to increase considerably in the future. Hence, adequate end-of-life (EoL) management for PV modules must be developed. Today, most of the EoL modules go to landfill, mainly because recycling processes for PV modules are not yet economically feasible ...

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With the rapid deployment of silicon solar photovoltaic (PV) technologies around the world, the volume of end-of-life (EoL) PV modules will increase exponentially in the next decade. Different EoL management strategies are being explored in the industrial and academic fields, such as recycling, remanufacturing and reusing.

End-of-Life of used photovoltaic modules: A financial analysis. F Cucchiella, P Rosa. *Renewable and Sustainable Energy Reviews* 47, 552-561, 2015. 175: ... an economic analysis. F Cucchiella, I D'adamo, M Gastaldi. *Journal of Cleaner Production* 131, 460-474, 2016. 145: ... Recycling of end-of-life vehicles: Assessing trends and performances in ...

Like other plants, every photovoltaic (PV) power plant will one day reach the end of its service life. Calculations show that 96,000 tons of PV module waste will be generated worldwide by 2030 and 86 million tons by 2050. Such large quantities of waste can endanger the environment and people if they are not disposed of properly. This paper investigated how ...

Cumulative photovoltaic (PV) power installed in 2016 was equal to 305 GW. Five countries (China, Japan, Germany, the USA, and Italy) shared about 70% of the global power. End-of-life (EoL) management of waste PV modules requires alternative strategies than landfill, and recycling is a valid option.

Downloadable (with restrictions)! As a consequence of the photovoltaic (PV) market expansion in the last 20 years, the cumulative global PV waste is expected to exponentially grow. A proper disposal of decommissioned PV panels is crucial for avoiding environmental risks and for recovering value-added materials. In this study, a Life Cycle Assessment (LCA) was ...

Specifically, this study examines the management of photovoltaic (PV) waste that is produced when PV modules reach end-of-life (EoL). PV modules contain precious and valuable...

The severe challenges of the end-of-life management of photovoltaic panels are predicted to enter its critical stage in Australia from the early 2030s owing to the wide-reaching deployment of PV panels in the past two decades. There appears to be a lack of holistic strategy concerning the environmental impacts of disposal scenarios and also enacting of ...

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