



# **Spain's Photovoltaic Revolution: The Energy Return on Investment (SpringerBriefs in Energy)**

*Pedro A. Prieto, Charles A.S. Hall*

[Download now](#)

[Click here](#) if your download doesn't start automatically

# Spain's Photovoltaic Revolution: The Energy Return on Investment (SpringerBriefs in Energy)

*Pedro A. Prieto, Charles A.S. Hall*

**Spain's Photovoltaic Revolution: The Energy Return on Investment (SpringerBriefs in Energy)** Pedro A. Prieto, Charles A.S. Hall

The Energy Return on Energy Invested (EROI or EROEI) is the amount of energy acquired from a particular energy source divided by the energy expended, or invested, in obtaining that energy. EROI is an essential and seemingly simple measure of the usable energy or “energy profit” from the exploitation of an energy source, but it is not so easy to determine all of the energy expenditures that should be included in the calculation. Because EROI values are generally low for renewable energy sources, differences in these estimates can lead to sharply divergent conclusions about the viability of these energy technologies. This book presents the first complete energy analysis of a large-scale, real-world deployment of photovoltaic (PV) collection systems representing 3.5 GW of installed, grid-connected solar plants in Spain. The analysis includes all of the factors that limit and adjust the real electricity output through one full-year cycle, and all of the fossil fuel inputs required to achieve these results. The authors’ comprehensive analysis of energy inputs, which assigns energy cost estimates to all financial expenditures, yields EROI values that are less than half of those claimed by other investigators and by the solar industry. Sensitivity analysis is used to test various assumptions in deriving these EROI estimates. The results imply that the EROI of current, large-scale PV systems may be too low to seamlessly support an energy and economic transition away from fossil fuels. Given the pervasiveness of fossil fuel subsidies in the modern economy, a key conclusion is that all components of the system that brings solar power to the consumer, from manufacturing to product maintenance and life cycle, must be improved in terms of energy efficiency. The materials science of solar conversion efficiency is only one such component.

Sunny Spain represented an ideal case study as the country had the highest penetration of solar PV energy at 2.3 percent of total national demand as well as state-of-the-art expertise in solar power including grid management of intermittent, modern renewable systems. This book, written by a uniquely qualified author team consisting of the chief engineer for several major photovoltaic projects in Spain and the world’s leading expert on the concept and application of EROI, provides a comprehensive understanding of the net energy available to society from energy sources in general and from functioning PV installations under real-world conditions in particular. The authors provide critical insight into the capacity of renewable energy sources to fill the foreseeable gap between world energy demand and depletion rates for fossil fuels.

- Presents the first comprehensive study of the EROI of large-scale solar PV systems in a developed country
- Uses real-world operational data rather than laboratory approximations and extrapolations
- Describes the dependence of one alternative energy source on the goods and services of a fossil-fueled economy
- Has global implications for the potential of renewable energy sources to replace dwindling reserves of fossil fuels
- Written with the first-hand knowledge of the chief, on-site engineer for many solar installations in Spain together with the leader in the development and application of the concept of EROI

 [\*\*Download\*\* Spain's Photovoltaic Revolution: The Energy Return ...pdf](#)

 [\*\*Read Online\*\* Spain's Photovoltaic Revolution: The Energy Retu ...pdf](#)

## **Download and Read Free Online Spain's Photovoltaic Revolution: The Energy Return on Investment (SpringerBriefs in Energy) Pedro A. Prieto, Charles A.S. Hall**

---

### **From reader reviews:**

#### **Sheila Gallagher:**

As people who live in often the modest era should be update about what going on or information even knowledge to make these people keep up with the era that is always change and make progress. Some of you maybe will probably update themselves by looking at books. It is a good choice to suit your needs but the problems coming to an individual is you don't know what one you should start with. This Spain's Photovoltaic Revolution: The Energy Return on Investment (SpringerBriefs in Energy) is our recommendation to help you keep up with the world. Why, because book serves what you want and want in this era.

#### **Morgan Lytle:**

The publication with title Spain's Photovoltaic Revolution: The Energy Return on Investment (SpringerBriefs in Energy) has a lot of information that you can discover it. You can get a lot of gain after read this book. That book exist new understanding the information that exist in this e-book represented the condition of the world at this point. That is important to you to be aware of how the improvement of the world. This particular book will bring you inside new era of the globalization. You can read the e-book with your smart phone, so you can read the idea anywhere you want.

#### **Terrence Kimball:**

This Spain's Photovoltaic Revolution: The Energy Return on Investment (SpringerBriefs in Energy) is great reserve for you because the content and that is full of information for you who have always deal with world and have to make decision every minute. This particular book reveal it details accurately using great arrange word or we can claim no rambling sentences included. So if you are read this hurriedly you can have whole facts in it. Doesn't mean it only gives you straight forward sentences but tricky core information with beautiful delivering sentences. Having Spain's Photovoltaic Revolution: The Energy Return on Investment (SpringerBriefs in Energy) in your hand like getting the world in your arm, info in it is not ridiculous one. We can say that no guide that offer you world in ten or fifteen tiny right but this publication already do that. So , this is good reading book. Hello Mr. and Mrs. active do you still doubt in which?

#### **Kenneth Matson:**

Many people spending their time by playing outside together with friends, fun activity together with family or just watching TV the entire day. You can have new activity to enjoy your whole day by looking at a book. Ugh, do you consider reading a book can really hard because you have to accept the book everywhere? It fine you can have the e-book, delivering everywhere you want in your Smartphone. Like Spain's Photovoltaic Revolution: The Energy Return on Investment (SpringerBriefs in Energy) which is finding the e-book version. So , try out this book? Let's notice.

**Download and Read Online Spain's Photovoltaic Revolution: The Energy Return on Investment (SpringerBriefs in Energy) Pedro A. Prieto, Charles A.S. Hall #DYG60R3SJM5**

## **Read Spain's Photovoltaic Revolution: The Energy Return on Investment (SpringerBriefs in Energy) by Pedro A. Prieto, Charles A.S. Hall for online ebook**

Spain's Photovoltaic Revolution: The Energy Return on Investment (SpringerBriefs in Energy) by Pedro A. Prieto, Charles A.S. Hall Free PDF download, audio books, books to read, good books to read, cheap books, good books, online books, books online, book reviews epub, read books online, books to read online, online library, greatbooks to read, PDF best books to read, top books to read Spain's Photovoltaic Revolution: The Energy Return on Investment (SpringerBriefs in Energy) by Pedro A. Prieto, Charles A.S. Hall books to read online.

### **Online Spain's Photovoltaic Revolution: The Energy Return on Investment (SpringerBriefs in Energy) by Pedro A. Prieto, Charles A.S. Hall ebook PDF download**

**Spain's Photovoltaic Revolution: The Energy Return on Investment (SpringerBriefs in Energy) by Pedro A. Prieto, Charles A.S. Hall Doc**

**Spain's Photovoltaic Revolution: The Energy Return on Investment (SpringerBriefs in Energy) by Pedro A. Prieto, Charles A.S. Hall Mobipocket**

**Spain's Photovoltaic Revolution: The Energy Return on Investment (SpringerBriefs in Energy) by Pedro A. Prieto, Charles A.S. Hall EPub**