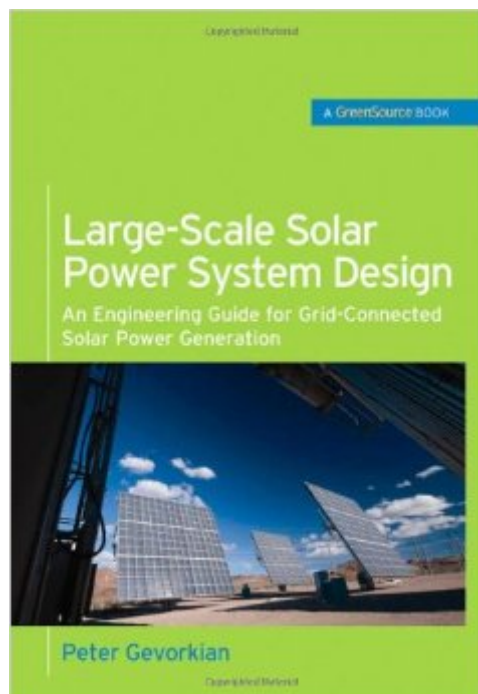


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# Large-Scale Solar Power System Design (GreenSource Books): An Engineering Guide For Grid-Connected Solar Power Generation (McGraw-Hill's Greensource)



## Synopsis

The Definitive Guide to Large-Scale, Grid-Connected Solar Power System Design and Construction  
This GreenSource book provides comprehensive engineering design and construction guidelines for large-scale solar power system projects. Proven design methodologies are detailed installation diagrams are included in this practical resource. Large-Scale Solar Power System Design offers complete coverage of solar power system technologies and components, planning, cost estimates, financing, project management, safety, and testing. This authoritative guide fully addresses the complex technical and management issues associated with large-scale, grid-connected solar power system implementations. **COVERAGE INCLUDES:** Solar power system technologies, including photovoltaic and thin-film solar cells Solar power system physics Photovoltaic power system feasibility study Solar power system costing Solar power system design Large-scale solar power system construction Concentrator photovoltaic systems Solar power system project management Smart-grid systems Solar thermal power Solar power financing and feed-in tariff programs

## Book Information

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## Customer Reviews

I bought this book after reading the reviews here. Even from a person with a Ph.D. I wonder how good these reviews are, simply people who are perhaps friends of the author could give an excellent view. When a book of 660 pages includes a 200 page (anyone could find online) solar panel wattage & other info in a column format and another 100 pages of tables anyone on internet

could find out (latitude/longitude) that itself tells you the rest of the content of the book. If this is a book used by our college students & with over \$70 price, god save the kids !!! What a waste. I also brought a book from the local library called "Photovoltaic Systems" by Jim Dunlop. This is very good book. After receiving the "large scale solar power systems designs" by Peter Gevorkian just now, I ordered the other book. Hope I could sell this useless stack of paper to someone. Using 50% of the pages for easy to find solar panel manufacturer data & tables, it seems to me the author has tried to increase the number of pages of this book rather than adding useful material.

As someone involved with large-scale photovoltaic (commercial and utility-scale) projects, I purchased this book thinking that it would provide a solid engineering-level knowledge of large-scale PV systems design. While it covered some aspects reasonably well, it failed in several key areas, and unfortunately did not meet my expectations as a solar design engineer. Several reviewers have given 5 stars for this book which I think is overly generous; This book really deserves 2.0 to 2.5 stars for its lack of engineering rigor, inadequate coverage of several design areas, and over 200 pages wasted on useless filler material. Bottom line is that a solid engineering-level textbook on Large-Scale PV System Design is still badly needed, so the search continues. For further explanation - see below:

First the positive aspects of this book: Chapter 1-4, 7, and 9 are for most part written well, although a few of these chapters (7 and 9) can use more detailed coverage of the subject. Now the disappointing aspects:

1. First the book is quite short on engineering-level details, and very thin both on mathematical/engineering rigor (a few equations) and examples.
2. Chapter 5, Solar Power Systems Cost Analysis - is okay but lacks any mathematical formulation for PV System life-cycle cost analysis and related ROI. There are no formulas. It does provide information on NREL\_SAM (Solar Advisory Model) which you can also obtain from NREL website.
3. Chapter 6, Solar Power System Design - which is one of the most important area of this "design book" is "far too short". It can easily be divided into at least two good sized chapters; one chapter covering electrical systems design, including main components sizing & BOS sizing; and the second chapter on mechanical system analysis and design, including wind load analysis of panels and stress/fatigue/vibrational/thermal analysis of components, bolts/attachments and structures.
4. The book has at least one chapter that is not needed for this large-scale "PV focused" system design book. That is chapter 11, Solar Thermal System. The brief chapter (17 pages wasted) covers concentrated solar thermal power (CSP). Although it is only 17 pages but still this book is geared towards PV Systems alone. The text book title should really state Large-Scale "Photovoltaic" System Design instead of the current title (Large-Scale "Solar" Power System Design), since solar

also covers CSP which is a broad subject, and would require a separate book.<sup>5</sup> From page 423 to page 659, it is filled with completely unnecessary material which can be easily acquired through manufacturer websites and other solar energy websites. The author could have provided the web-links of these sites on one page and saved over 200 pages of the text. This issue is also covered by one or two other reviewers (see 1-star rating review).

Whether you are a dedicated professional, an end-user seeking to become well-versed in the logistics and associated costs of photovoltaic installation, or a student pursuing a path to a career in alternative energy, Peter Gevorkian's Large Scale Solar Power System Design offers a wealth of information about the variety of issues associated with solar energy systems. The book is a thorough assessment of the elements associated with the design, planning, installation, financing, and operations of such a system. Dr. Gevorkian discusses at length the variety of system applications currently in use, ranging from ground-based systems to roof arrays. He is very insightful in charting the elements associated with smart grid systems. His perspective on financing large-scale solar systems, particularly regarding such highly discussed options as customer rebates and feed-in tariff, offers readers a balanced view of how to navigate a setting that has complexity in the decisions that users must eventually make in measuring affordability, payback, and overall cost-benefit. All in all, Dr. Gevorkian's work is a very effective presentation of the potential assets and liabilities associated with opting for solar power as the alternative energy system of choice.

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