

A vibrant sunset or sunrise scene with a large, glowing sun in the upper left, casting a warm orange and yellow light across the sky. The sun is partially obscured by a lens flare effect.

# ELECTRICITY FROM SUNLIGHT

PHOTOVOLTAIC-SYSTEMS INTEGRATION  
AND SUSTAINABILITY



SECOND EDITION

VASILIS FTHENAKIS  
PAUL A LYNN



WILEY

# Electricity from Sunlight

Photovoltaic-Systems Integration  
and Sustainability

Second Edition

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**A technically authoritative overview of photovoltaics and its practical applications  
– now including sections on large-scale PV and the sustainability of its growth**

Praised for its visual appeal, conversational style and clear explanation of complex ideas with minimal mathematics, *Electricity from Sunlight* has been thoroughly revised and updated to reflect advances in the global PV market, economics and installed capacity.

Key features of the 2nd edition include:

- A timely update of the advances of photovoltaics (PV), with major new material on grid-connected systems.
- More in-depth treatment of PV scientific principles, solar cells, modules, and systems.
- Up-to-date coverage of the PV market including conversion efficiencies and the expansion of grid-friendly power plants.
- End-of-chapter questions to support instructors and students through guided self-study.
- New chapters on manufacturing processes and on materials and other resources availability.
- New large-scale PV section covering the growth of global capacity, utility-scale PV and affordable solutions for intermittency.
- Systems analysis of new applications empowered by low-cost PV, such as energy storage and water desalination.
- Significantly expanded economics and environmental section explaining leveled cost of electricity versus upfront costs, energy return on investments, and lifecycle analysis.

*Electricity From Sunlight: Photovoltaic-Systems Integration and Sustainability, Second Edition* is an essential primer for new entrants to the PV industry, needing a basic appreciation of complete PV systems, and to students on undergraduate and graduate courses on renewable energy and photovoltaics. It also offers a unique treatise of the sustainability of emerging transformative technologies, which makes it useful to both system analysts and energy policy strategists.

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