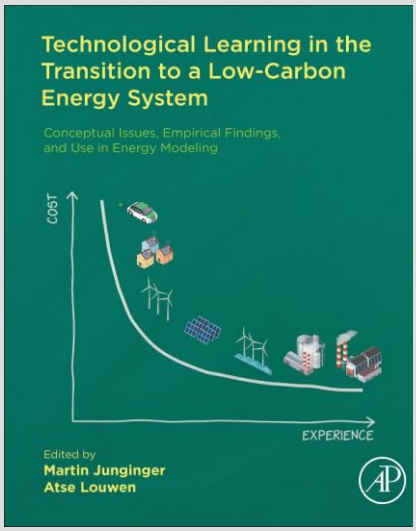

Technological Learning in the Transition to a Low-Carbon Energy System

Conceptual Issues, Empirical Findings, and Use, in Energy Modeling

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Uses experience curves, technology-specific cost trends, and overall modeling results to explore the future mix of the electricity, heat and transport sectors

KEY FEATURES

- Provides a comprehensive overview of trends and drivers for major energy technologies expected to play a role in the energy transition
- Delivers data on cost trends, helping readers gain insights on how competitive energy technologies may become, and why
- Reviews the use of learning curves in environmental impacts for lifecycle assessments and energy modeling
- Features social learning for cost modeling and technology diffusion, including where consumer preferences play a major role

DESCRIPTION

Technological Learning in the Transition to a Low-Carbon Energy System: Conceptual Issues, Empirical Findings, and Use in Energy Modeling quantifies key trends and drivers of energy technologies deployed in the energy transition. It uses the experience curve tool to show how future cost reductions and cumulative deployment of these technologies may shape the future mix of the electricity, heat and transport sectors. The book explores experience curves in detail, including possible pitfalls, and demonstrates how to quantify the 'quality' of experience curves. It discusses how this tool is implemented in models and addresses methodological challenges and solutions.

For each technology, current market trends, past cost reductions and underlying drivers, available experience curves, and future prospects are considered. Electricity, heat and transport sector models are explored in-depth to show how the future deployment of these technologies—and their associated costs—determine whether ambitious decarbonization climate targets can be reached - and at what costs. The book also addresses lessons and recommendations for policymakers, industry and academics, including key technologies requiring further policy support, and what scientific knowledge gaps remain for future research.

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