

# Unveiling Leading Photovoltaic Business Models

## A Comprehensive German Analysis

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*In a rapidly expanding global photovoltaic market, the inner workings of the businesses driving this growth are relatively unexplored. This study investigated successful and prominent business models operating within the German photovoltaics sector, offering insights into the past, present, and future of this industry.*

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This work investigates prominent business models within the photovoltaics industry, to classify those models, and to gain a better understanding of their operations.

Photovoltaics play a crucial role in the global transition to green energy, and the photovoltaic revolution is being driven by companies engaging in this industry. Germany was chosen as the geographical focus due to its long-standing leadership in photovoltaics and the maturity of its market.

Four distinct categories of prominent business models were identified: B2C PV turnkey providers, Solar parc developers, Contracting providers, and Solar parc investors.

Additionally, two less dominant categories, named B2B PV turnkey providers and B2B roof leasing, were identified.

The analysis revealed that B2C PV turnkey providers and Contracting providers have experienced remarkable growth in recent years, capitalizing on reduced PV installation costs and increased electricity prices. Conversely, Solar parc developers and investors, primarily involved in large-scale PV systems, have historically relied on government incentives in form of EEG, a trend that persists to this day.

Looking ahead, it is anticipated that B2C-oriented categories will continue to grow into the largest market segments, as the photovoltaics industry is becoming less incentive driven. PV systems within these

categories are likely to witness a stabilization in price reductions, aligning with current cost structures and adhering to Swanson's Law, which predicts price reductions of 20%, for every doubling of the globally shipped volume of PV modules. Categories dealing with larger PV systems will be the larger benefactors of further price reductions in PV modules, but can expect diminishing government incentives on the revenue side.

This research adopted an exploratory, mixed-methods approach, iteratively building on drawn conclusions, and laid a solid foundation for further research in the realm of PV business models. As part of the qualitative research, case studies were utilized to draw examples from real-world companies. The business models of the case study subjects were mapped using the Business Model Canvas framework developed by Alexander Osterwalder.

Through exhaustive online research efforts, a list of 123 active companies across six defined business categories was compiled. Twelve case study subjects were meticulously selected from this list based on financial and narrowness-of-focus criteria. Prominent companies such as Ikomma5° GmbH, Enpal B.V., and Enerparc AG were among the 12 companies investigated in this research.

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Berlin 2023