22
PV in Architecture

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22.1 INTRODUCTION

22.1.1 Photovoltaics (PV) as a Challenge for Architects and Engineers

What is happening in the built environment around us? We are witnessing an essential change in society. Governments are spending hundreds of millions of dollars on research, development and the demonstration of renewable energy. Big oil companies such as BP Amoco and Shell have invested more than a billion dollars in solar energy. Current developments show that renewables, such as solar energy systems, will be incorporated into our daily life in the near future, as conventional energy sources become depleted and environmental concerns grow [1].

Within a short period of time, solar systems will become an integral part of our society and thus our environment. There are large incentives for urban planners and architects to incorporate these techniques into their design. New products are emerging yet need further development to fully meet the architectural needs of sustainable buildings. Architects therefore need to start thinking about this new Smart Solar Architecture.

The European Commission has issued the "White Paper for a Community Strategy and Action Plan, Energy, for the future: Renewable Sources of Energy" [2]. This White Paper sets a target of 12% for the contribution of renewable energy sources to the total energy consumption in the European Union by 2010. The "Campaign for Take-Off" was launched in 1999 and aims to facilitate the success of the Strategy for Renewable Energy Sources up to the year 2003. One of the proposed key sectors to be promoted during the campaign is PV systems – 1 million systems in total.

The 450 MWp rooftop system campaign in the European Union can be achieved by installing 150 000 systems at an average capacity of 3 kWp each. The 150 MWp

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