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C.1 Sustainable growth of the VLS-PV system concept; C.2 Possible approaches for the future; C.3 Financial and organizational sustainability; C.4 Recommendations; C.4.1 General understandings; C.4.2 Recommendations on a policy level; C.4.3 Checklist for specific stakeholders; Part I: Background and Concept of VLS-PV; 1. World energy issues; 1.1 Long-term trend in world primary energy supply and demand; 1.2 Potential of renewables; 1.3 Trends in the PV market; 1.3.1 PV module production and PV system introduction in the world; 1.3.2 Perspectives of the PV market; References

2. Environmental issues; 2.1 Global environmental issues; 2.1.1 Observed change in the global climate system; 2.1.2 Projections of the future climate; 2.1.3 Projected influences by climate warming; 2.1.4 Recent progress for mitigating the projected future climate; 2.2 Regional and local environmental issues; 2.2.1 Acid rain; 2.2.2 Desertification and land degradation; 2.2.3 Biodiversity and natural systems; 2.3 Expected impacts and approaches for VLS-PV; References;

3. An overview of photovoltaic technology; 3.1 Basic characteristics of photovoltaic technology

3.2 Trends in government budget relating to PV programmes in three regions

3.3 Trends in solar-cell technology; 3.3.1 Crystalline silicon solar cells; 3.3.2 Thin-film solar cells; 3.3.3 Technologies in perspective; 3.4 Trends in PV system technology; 3.4.1 Technologies in perspective; 3.4.2 Estimation of electricity production from PV systems;

3.5 Trends in power transmission technology; 3.5.1 A.C. power transmission; 3.5.2 D.C. power transmission; 3.6 Experiences in operation and maintenance of large-scale PV systems; 3.6.1 Operation and maintenance cost information

3.6.2 Long-term performance

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## Sommario/riassunto

The world's deserts are sufficiently large that, in theory, covering a fraction of their landmass with PV systems could generate many times the current primary global energy supply. This Energy from the Desert volume examines and evaluates the potential of very large scale photovoltaic power generation (VLS-PV) systems. Following from the success of the first book on the subject, the authors present practical case studies of both virtual and real projects based on selected regions (including the Mediterranean, the Middle East, the Gobi Desert and Western Australia) and their

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