Levelized Cost of Photovoltaic (PV) Electricity

Solar power soon offers the lowest-cost electricity in many regions of the world!

*Real values in EUR 2014; bandwidth represent different scenarios of market, technology and cost development, as well as power plant location between south of Germany (1190 kWh/kWp/yr) and south of Spain (1680 kWh/kWp/yr). Source: Own illustration

Study on behalf of Agora Energiewende
Crystalline Silicon Technology Portfolio

c-Si PV is not a Commodity, but a High-Tech Product!

material quality
• diffusion length
• base conductivity

device quality
• passivation of surfaces
• low series resistance
• light confinement

cell structures
• PERC: Passivated Emitter and Rear Cell
• MWT: Metal Wrap Through
• IBC-BJ: Interdigitated Back Contact – Back Junction
• HJT: Hetero Junction Technology

Adapted from Preu et al., EU-PVSEC 2009
PV Market Growth: PV heading into the Terawatt Range!

- Rapid introduction of PV globally is fueled by availability of cost-competitive, distributed energy
- In 2050 between 4,000 and 30,000 GW_p PV will be installed!
- By 2016, less than 300 GW_p have been installed!

We are just at the beginning of the global growth curve!
• With all these positive outlooks for the global penetration of cost-effective PV, progress of PV into the huge market of 1.4 bn people without own electricity worldwide is still very slow.

• All contestants of SOLAR FOR ALL confirmed that access to financing is their biggest obstacle for further expansion.

• Contests such as SOLAR FOR ALL can serve to identify innovative solutions in the field of commmunity solar electrification.

• The combination of technical due diligence by Fraunhofer ISE, combined with a thorough financial analysis serves well to de-risk investment into SOLAR FOR ALL finalists.

• Fraunhofer ISE is pleased to offer technical due diligence for PV projects of all sizes on a global basis, with more than 30 years of world-leading research experience in this field!
• The Jury was very pleased about the technical quality and the multiplication potential of all finalists, especially the winning teams.

• We consider crowdfunding for those companies to be a very promising strategy to access investor money.

• We strongly recommend participation in the crowdfunding of bettervest, for SOLAR FOR ALL winners, and for their other projects.

• The combination of thorough technical and financial analysis, followed by crowdfunding, might develop into a very promising approach to assist in bridging the financing gap for off-grid entrepreneurs in India and globally!
Thank you for your attention!