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Next Generation Solar Cells

2017 EU-US Frontiers of Engineering Symposium

US National Academy of Engineering
European Council of Applied Sciences, Technologies, and Engineering

Session Co-Organizers

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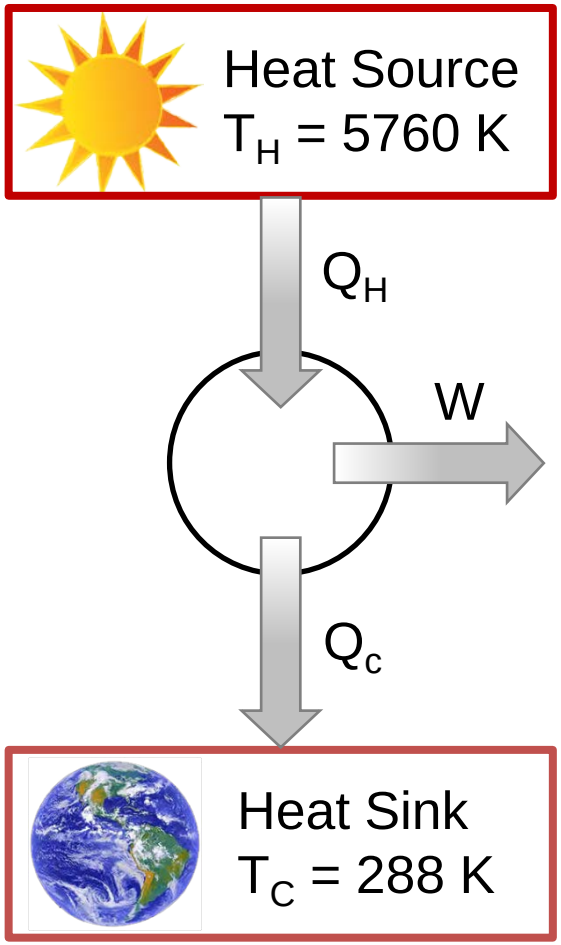
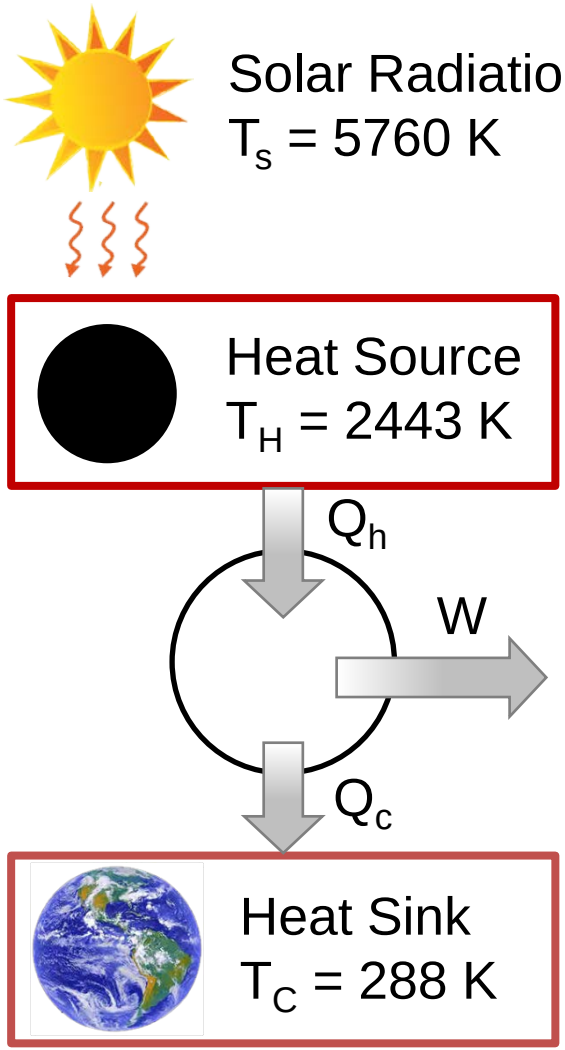
Ultimate Theoretical Efficiency of Solar Energy Conversion

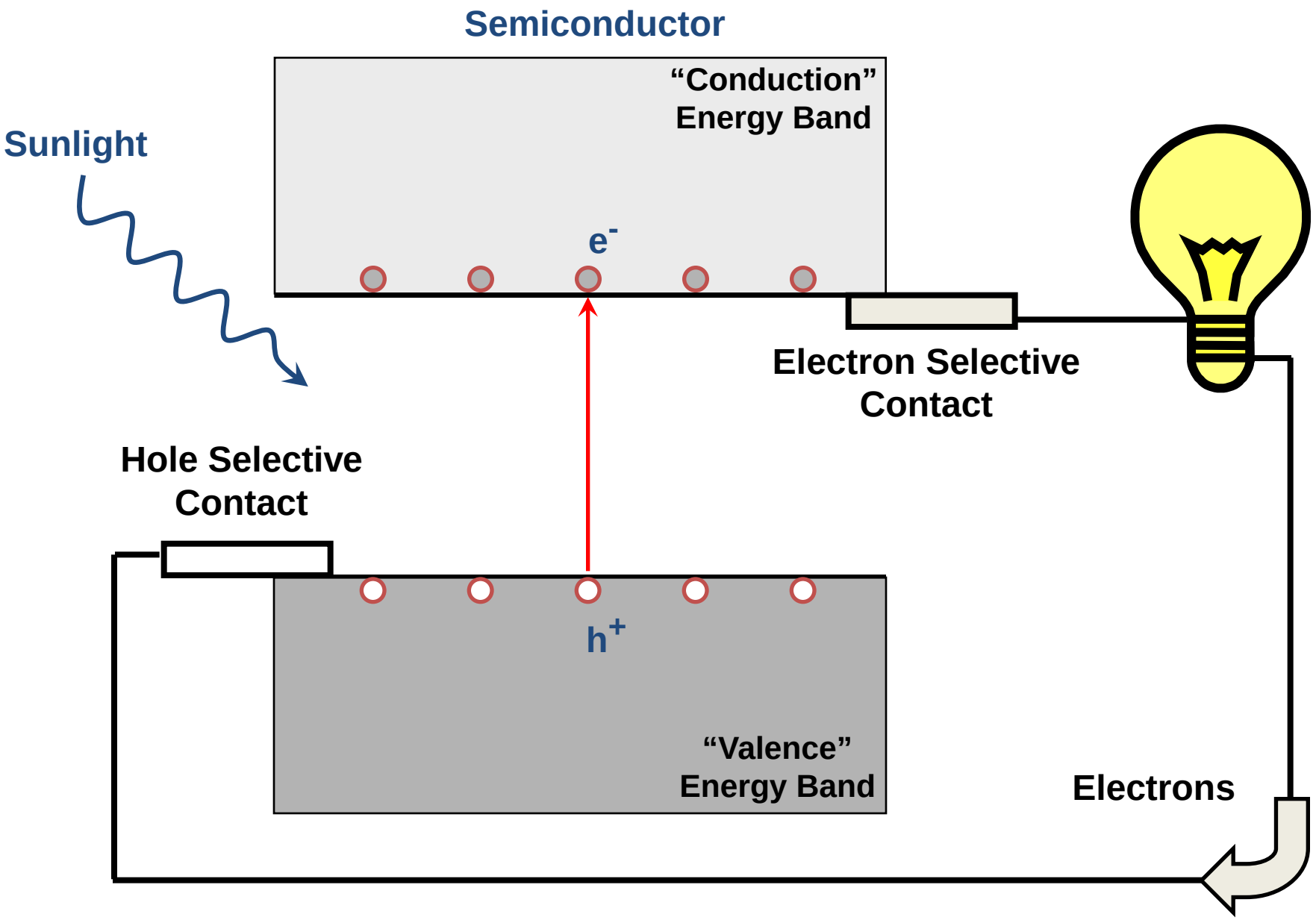


Carnot Limit
η = 95.0%

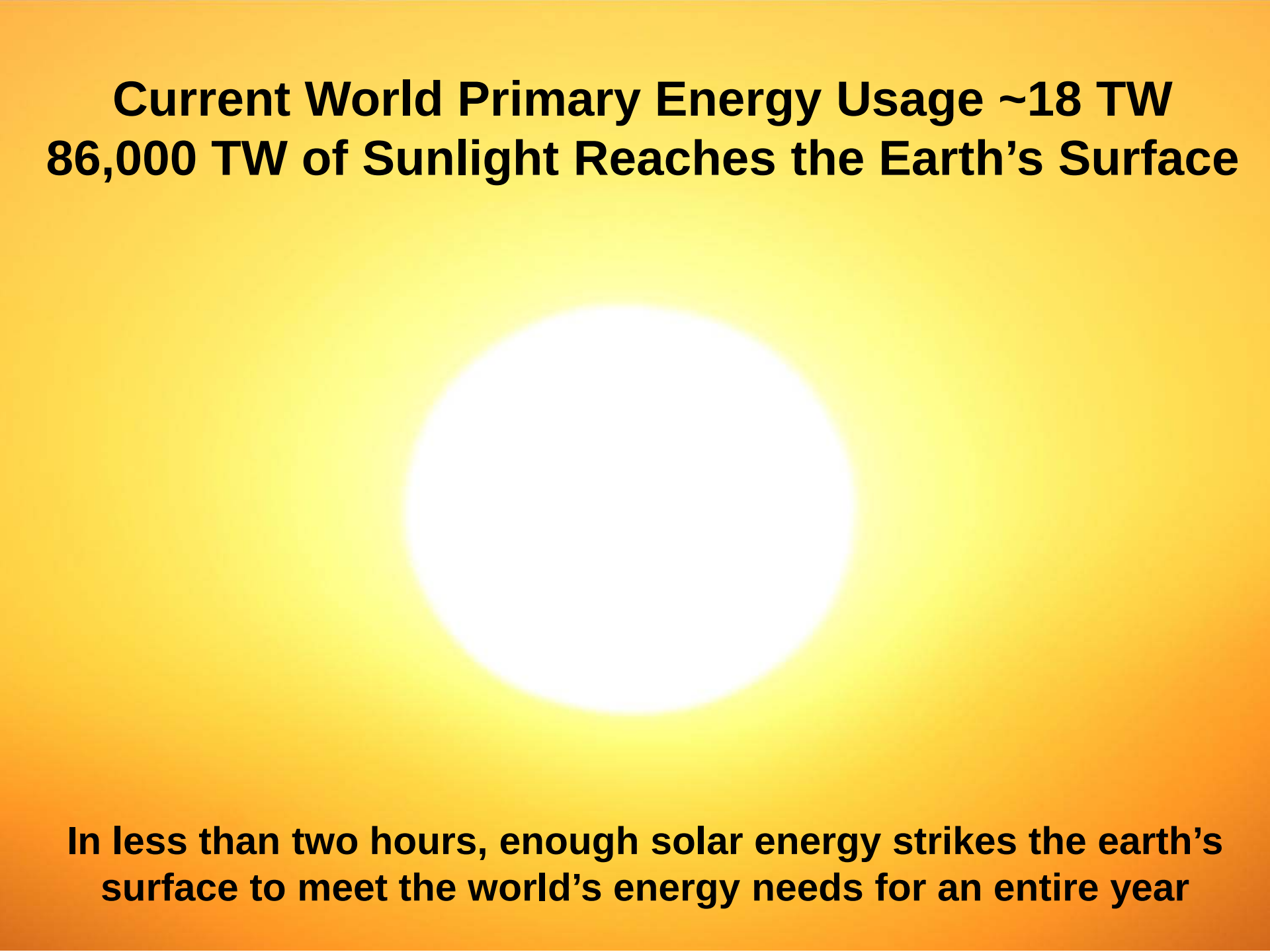


Solar Thermal Limit, η = 85.4%
Solar Cell Limit, η = 86.8%
Typical Panel, η = ~17%

What is a Solar Cell?



Current World Primary Energy Usage ~18 TW
86,000 TW of Sunlight Reaches the Earth's Surface



In less than two hours, enough solar energy strikes the earth's surface to meet the world's energy needs for an entire year

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Speakers

Dirk Weiss (First Solar, USA)

Bernd Rech (Helmholtz Center, Germany)

Joey Luther (NREL, USA)

Stephan Buecheler (EMPA, Switzerland)