

PH Pädagogische Hochschule Wien

PHOTOVOLTAICS SOLAR THERMIC APPLICATIONS BASICS

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ΓΔ Εκπαίδευση και πολιτισμός

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GD Bildung und Kultur

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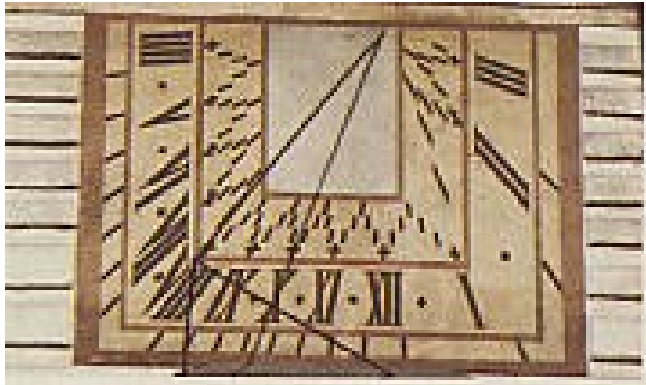
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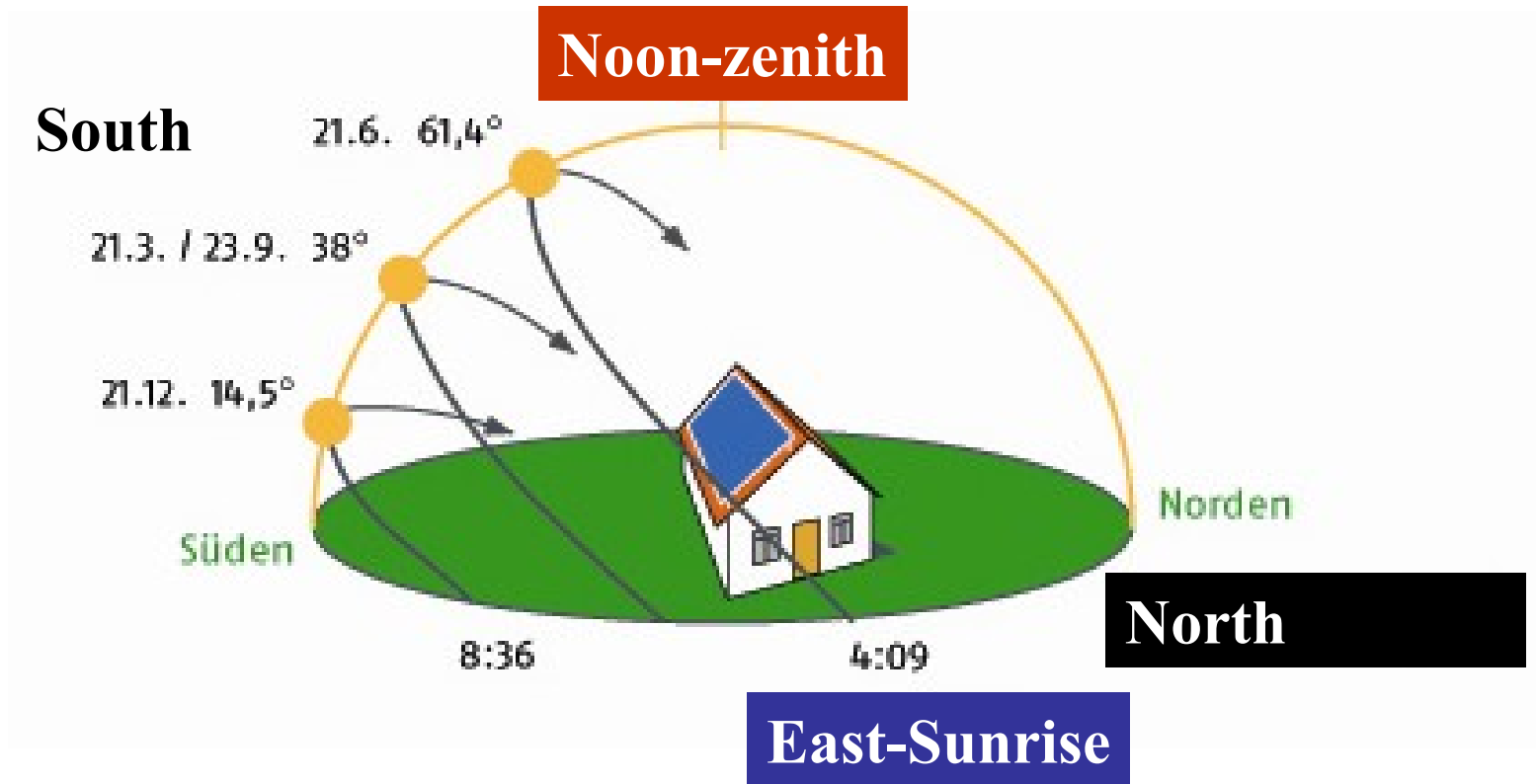
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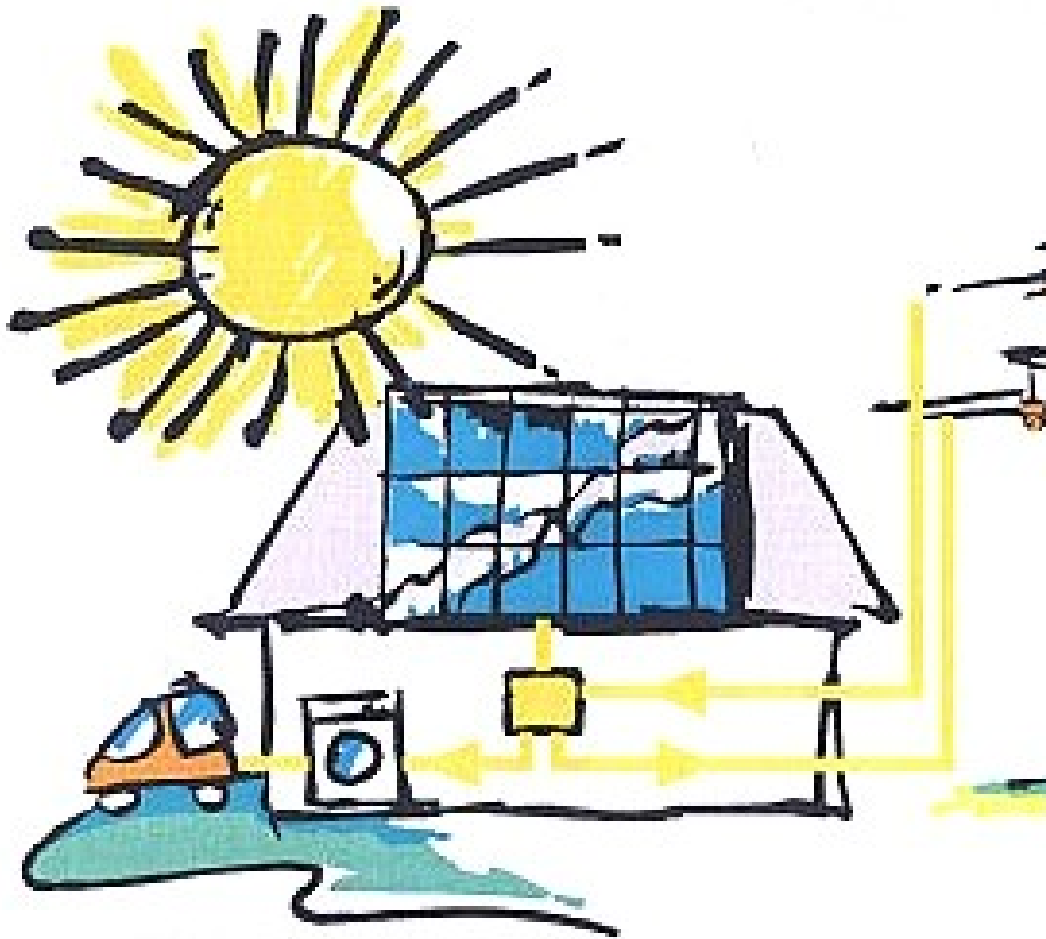


Verschiedene Sonnenuhren
Numerous Sundials

Die Sonne zeigt die auch die
Uhrzeit an.
The sun indicates the time, too.







Die Sonne nutzen...

Using the sunshine...

Solarzelle – Photovoltaik:

Strom von der Sonne

Solar Cells – Photovoltaics

Electricity directly from the sun

Solarthermie – Sonnenkollektor:

Solar Thermic Application –

solar panel-solar concentrator

Wärme von der Sonne

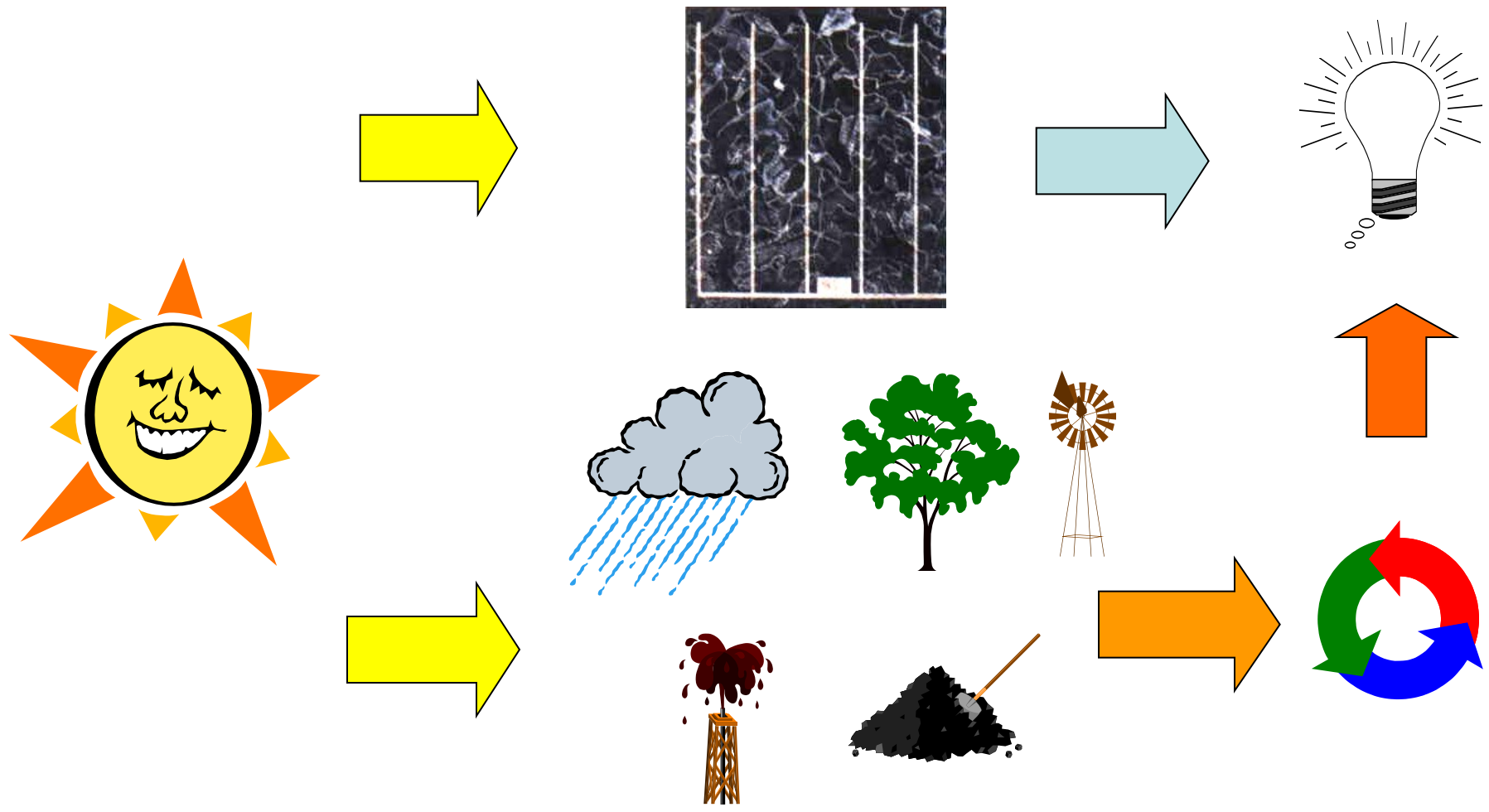
Warmth directly from the sun

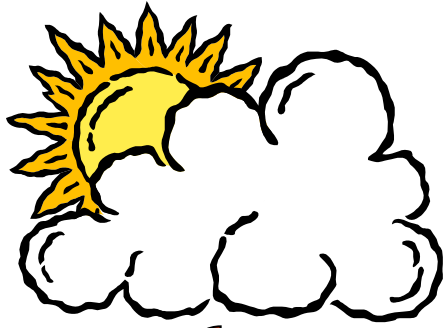
Geothermie – gespeicherte

Wärme

Geothermy – stored warmth from

the sun





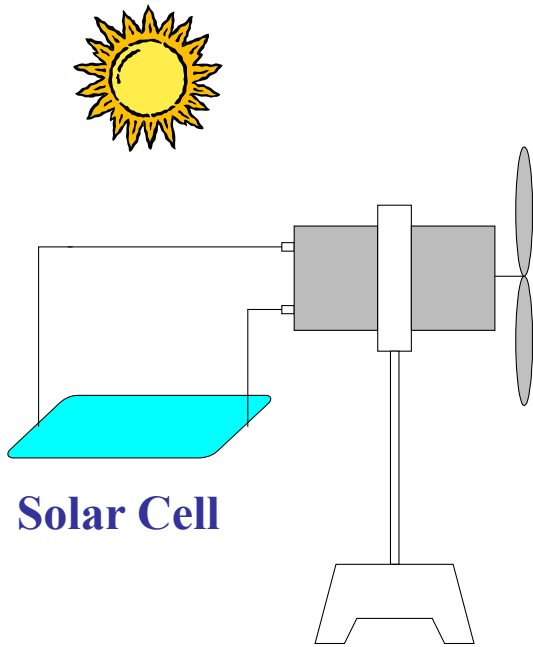
Energy from the Sun
1 MWh/a.m²

Solar Cell: $\eta = 0,1$ / Transfer $\eta = 0,7$ / Total $\eta = 0,07$

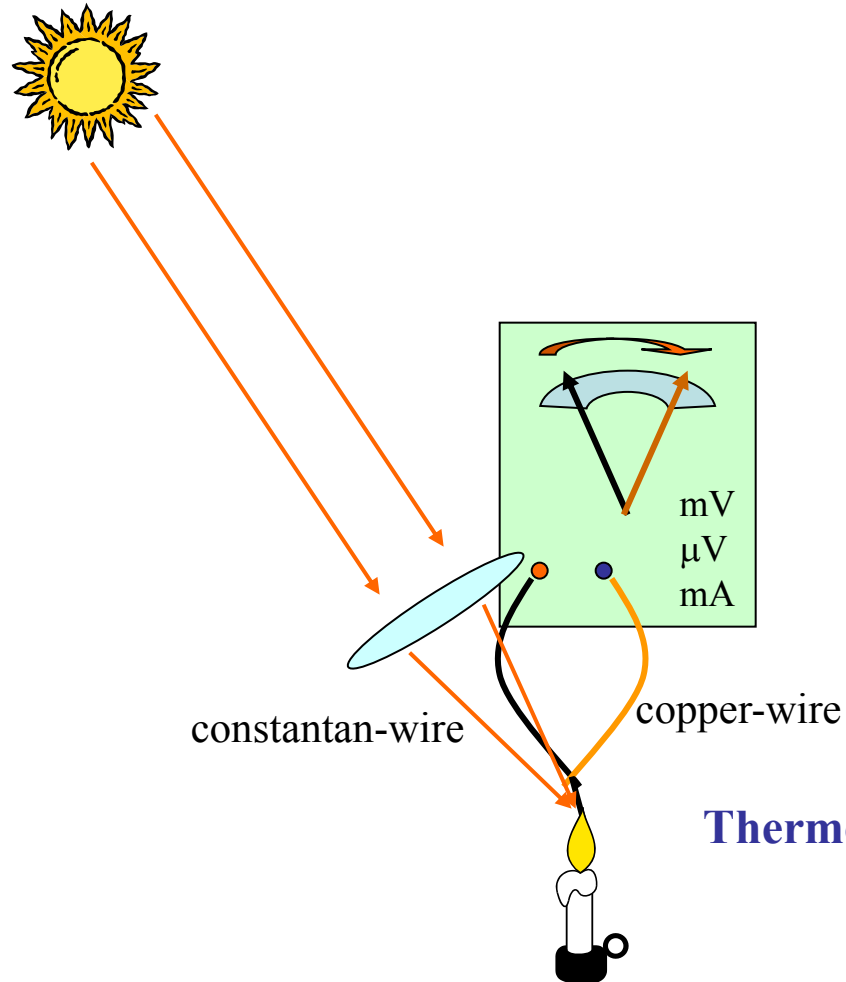
Energetic Output: 70 kWh/m².a
2,7 kWh/m².d

Summer up to 10 kWh/m².d

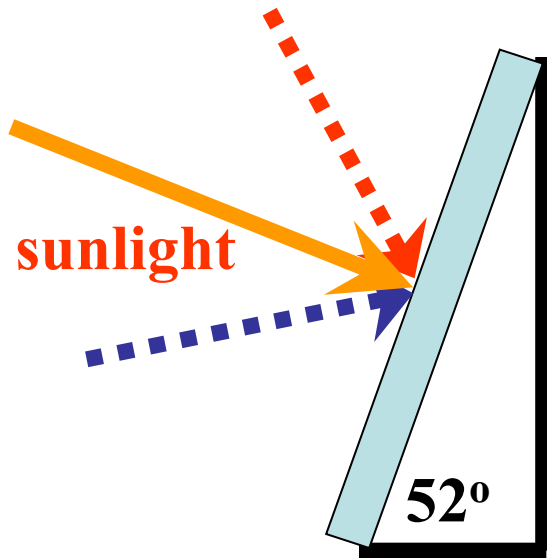
Winter: 150 Wh/m².d



Expose a Solar Cell directly to the sun - the electric motor will run.



Expose the copper - constantan - contact to heat (IR) and you get electricity.



two maxima of power
spring and autumn

because of shadowing:
area increases by
factor 6,5

**For ensuring a safe power supply:
use the factor 3 times !**





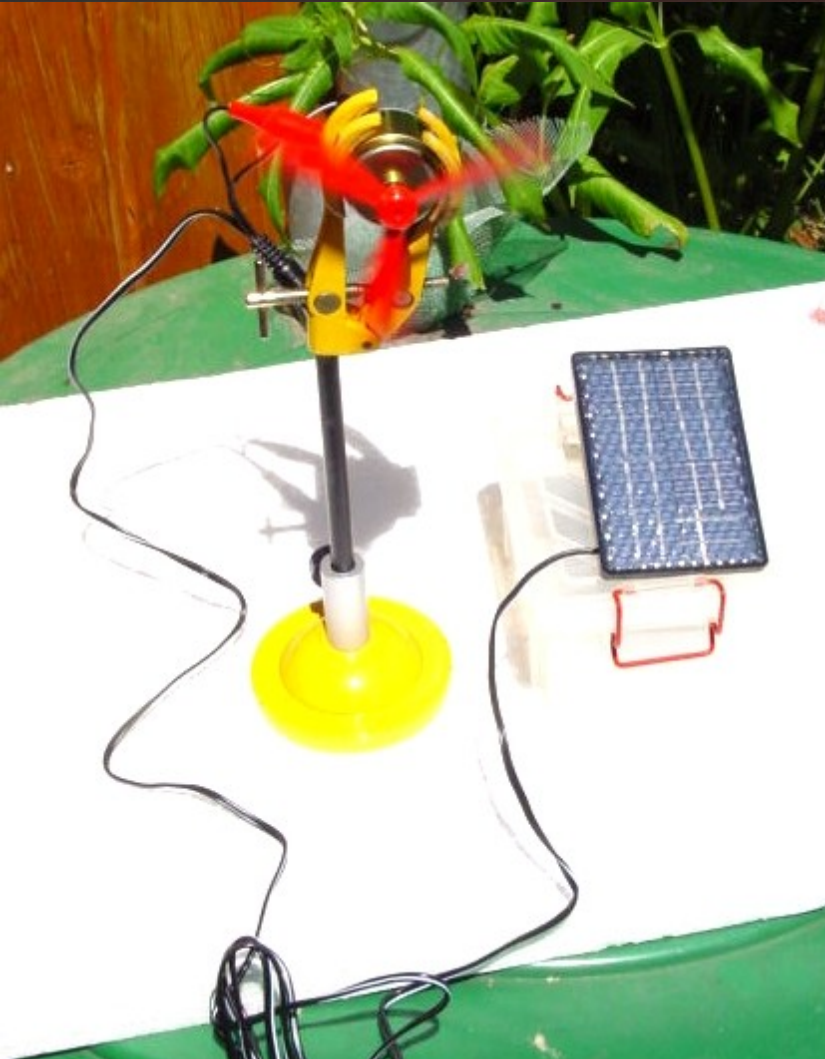
solar fountain





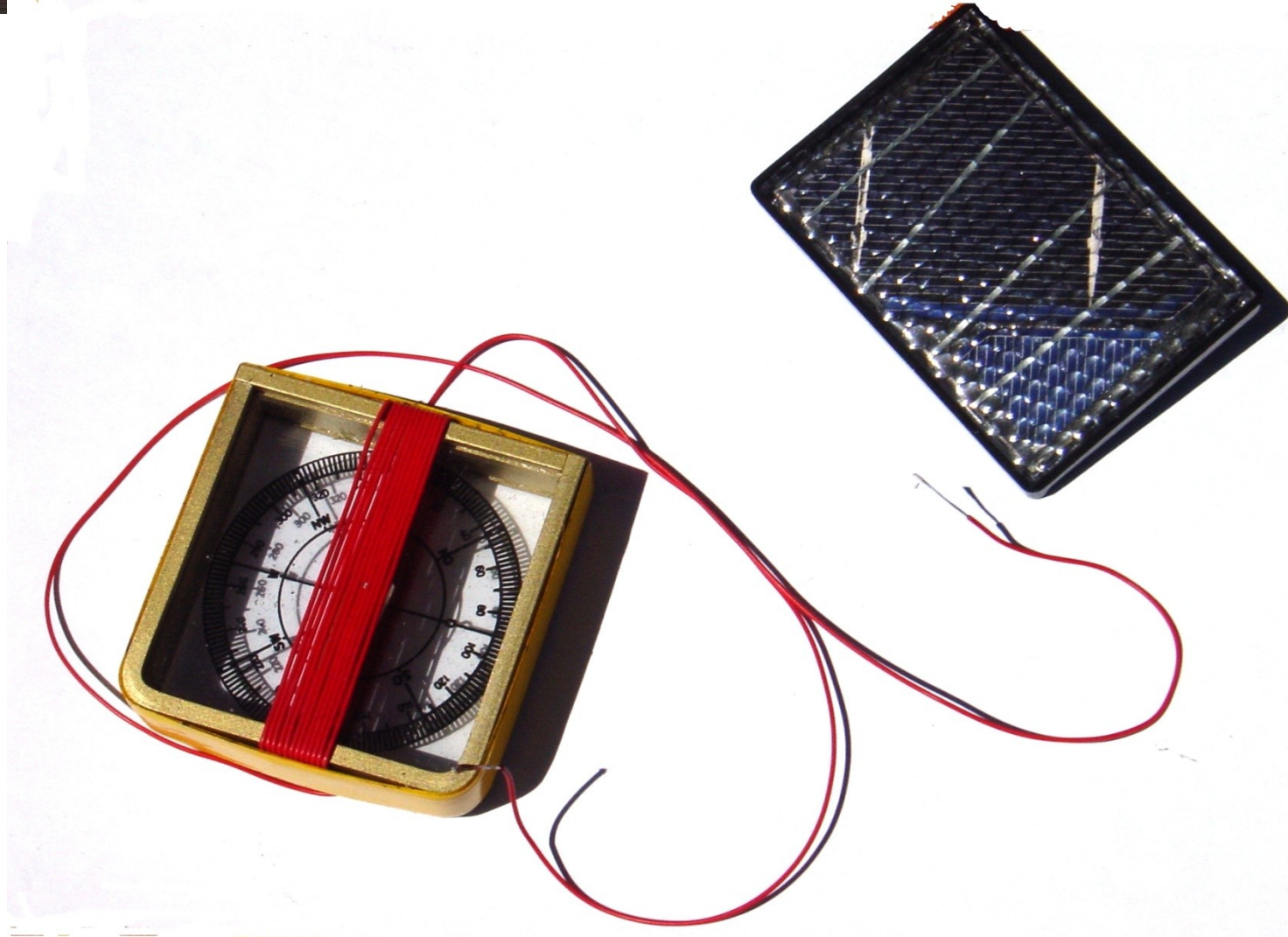


Solar Cells run an Engine

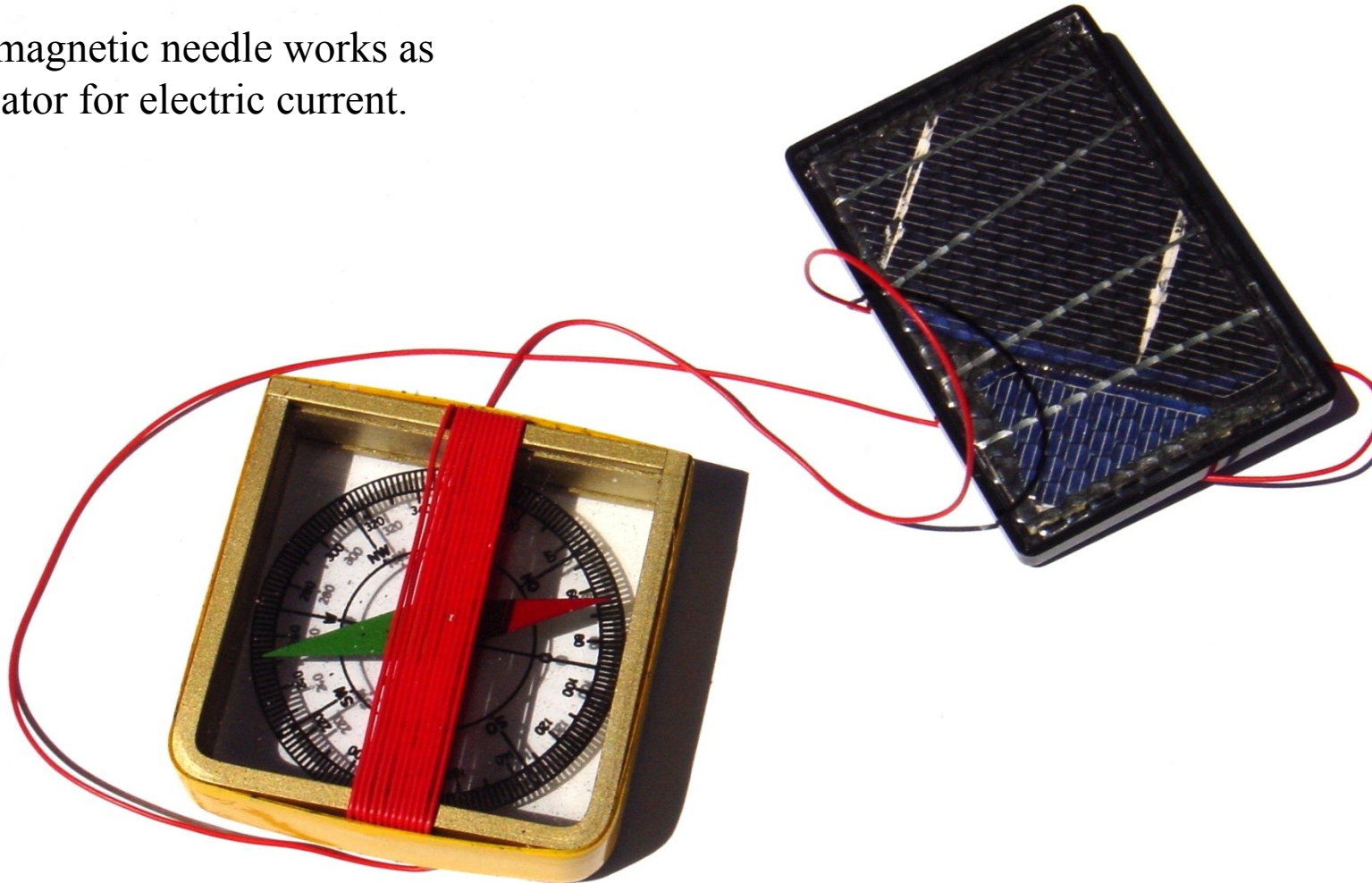


Solarzelle
Solar Cells

Die Sonne treibt den
Motor an.
The sun runs the
engine.



The magnetic needle works as indicator for electric current.





Hausfassaden belegt
mit Solarzellen.....
House front (facade)
covered by solar cells

Foto: stromaufwärts

Die stromaufwärts Photovoltaik GmbH sorgt für hauseigenen Solarstrom.



**Lärmschutzwand
an der
Autobahn
Sound barrier at
the highway**

Quelle: Kurier 2008-04-20





Sun Power Station Loser, 40 kW

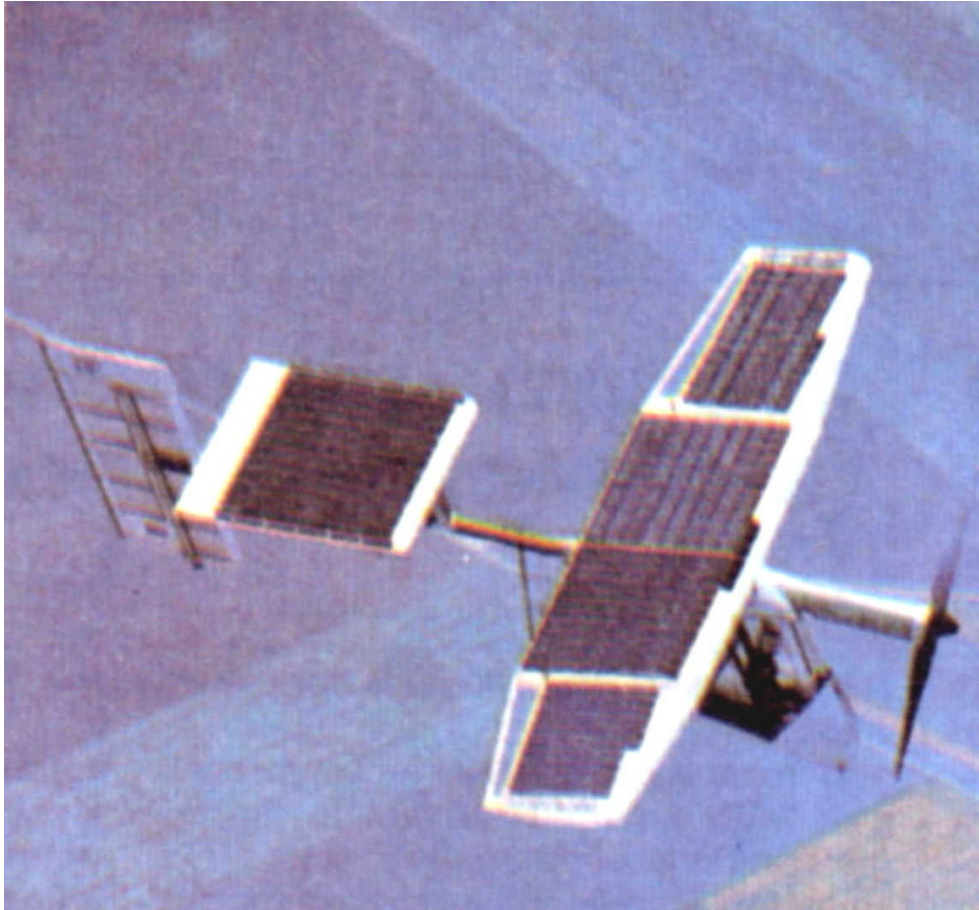


Zeppelin „Ella“

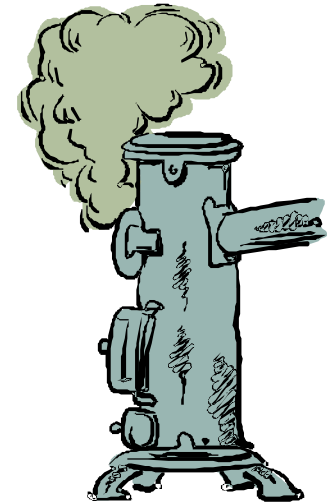




Helios



Challenger
engine 2 x 2,7 kW



It's history

