



Energy Security in the LA Region: Renewable Energy as a Viable Alternative

**Solar Energy: Overall potential with specific focus on
productive applications in off-grid areas**

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Thailand survey

Deutsche Gesellschaft für Sonnenenergie e.V.
International Solar Energy Society, German Section



The findings of the EU-study:



**Asia Pro Eco project TH/Asia Pro
Eco/05 (101302)**

**Diagnostic Study on Renewable Energy
Potential and Feasibility
in Southeast Asia**

www.dgs.de/asiaproeco

- **The survey finds that out of the 405 systems, 22.5% were broken within the first year ! Sources are bad installation and bad production**
 - **Users not aware of warranty terms and hence considered PV a bad investment**
 - **Payback to international finance not coming, purchasers are broke, donor programmes move on**
- ⇒ **Technology lash back
PV technology is branded bad, not the guilty industry or installers**



- 2.000.000 kWpeak PV installed
- Exorbitant growth rates
- Customers can not choose their equipment, lack of regulation
- Price increase of systems 5% are also going to the world market
- Quality problems surfacing
- Some companies have ROI of 25%
- Market has seized since two months ago

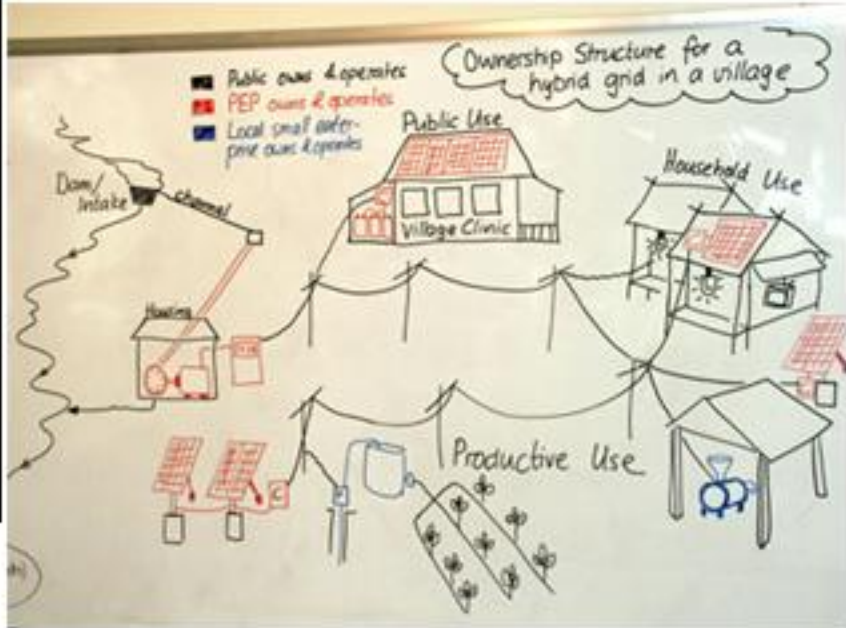
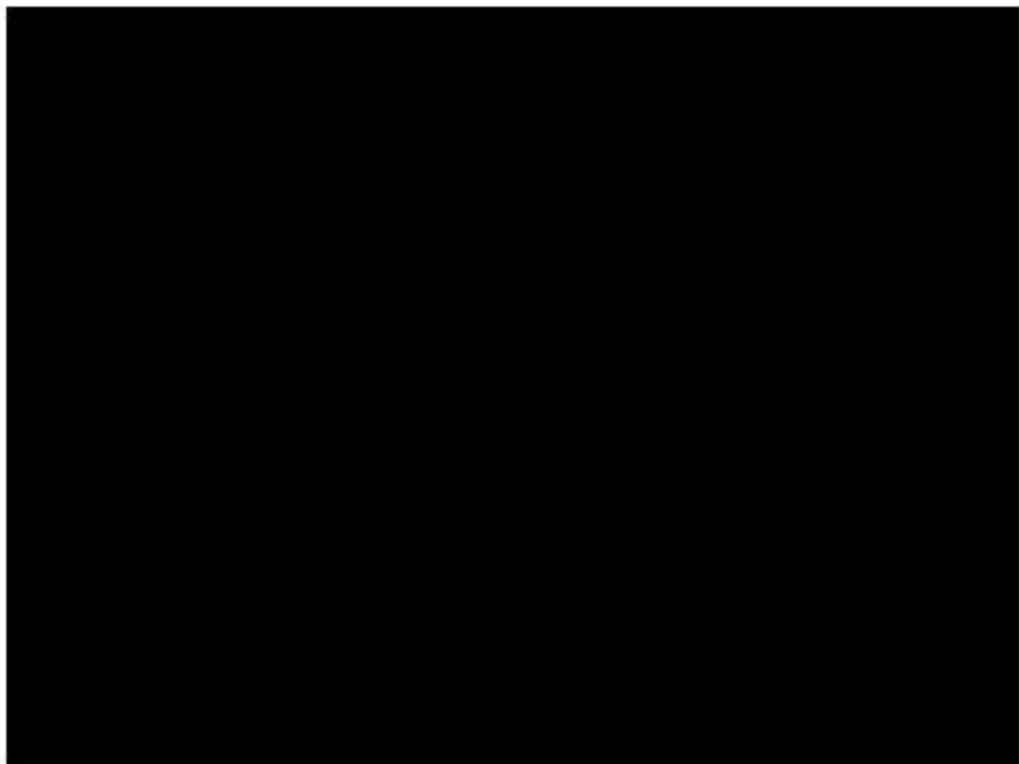
**Pioneer
or
Culprit ?**



That is the future!

but

what about today?



Off grid: the pitiful picture





K. Yumkella, opening speech:

**We can't fight poverty without
creating wealth!**

⇒ It is not about energy ...

... it is about money !

⇒ The Poor are investors in PV



**users want the electricity or
energy service**

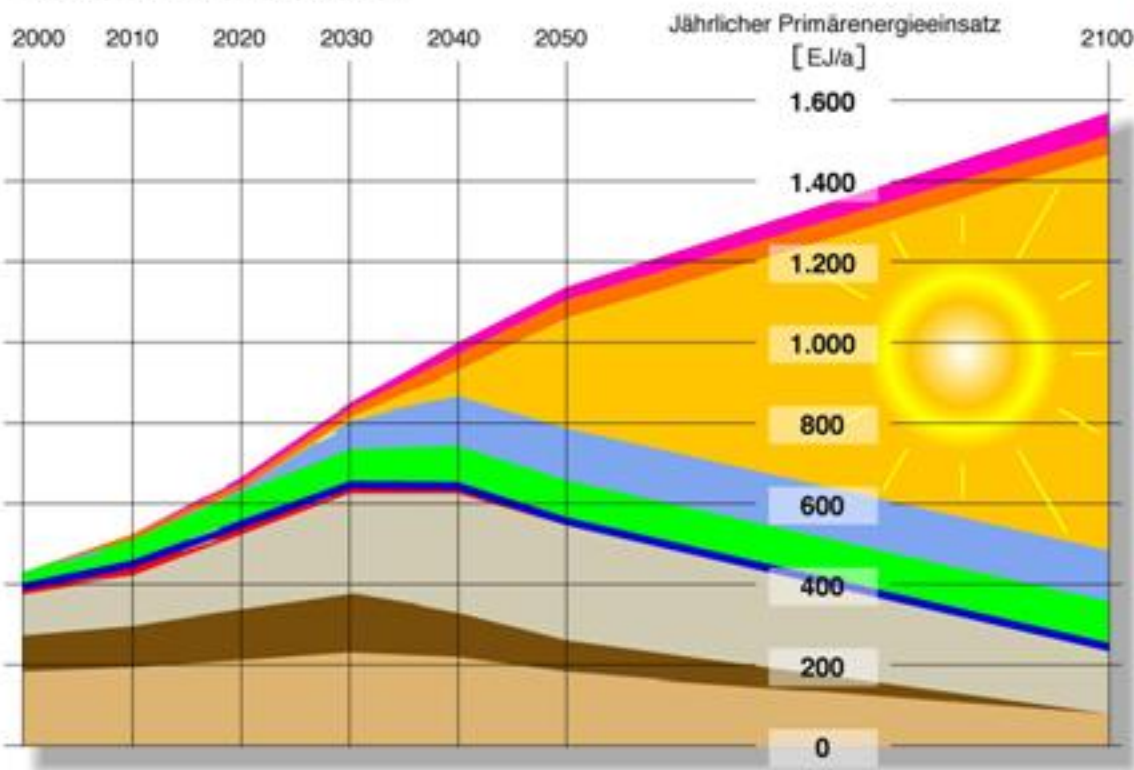
**not
the equipment**

...if done right and price is down!



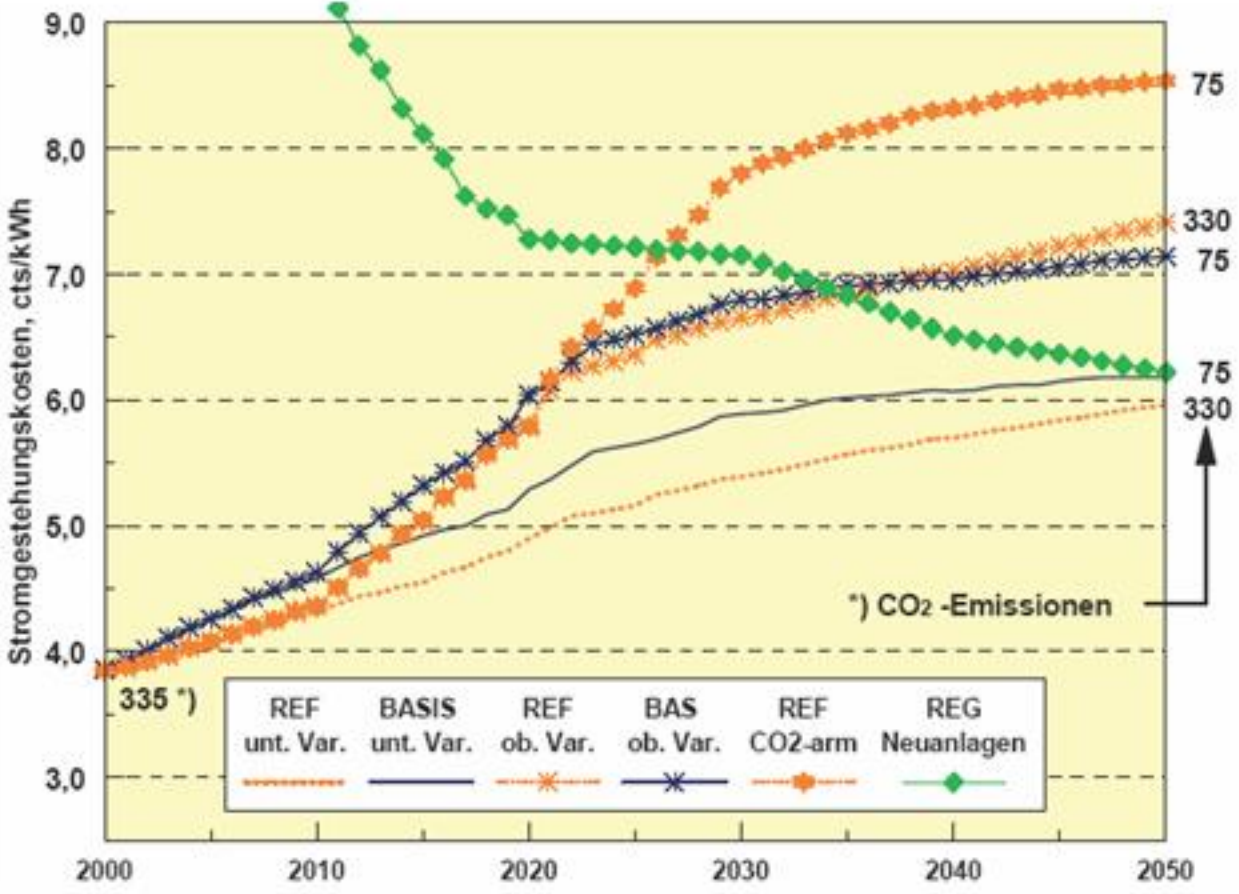


Prognose des Wissenschaftlichen Beirates der Bundesregierung
Globale Umweltveränderungen

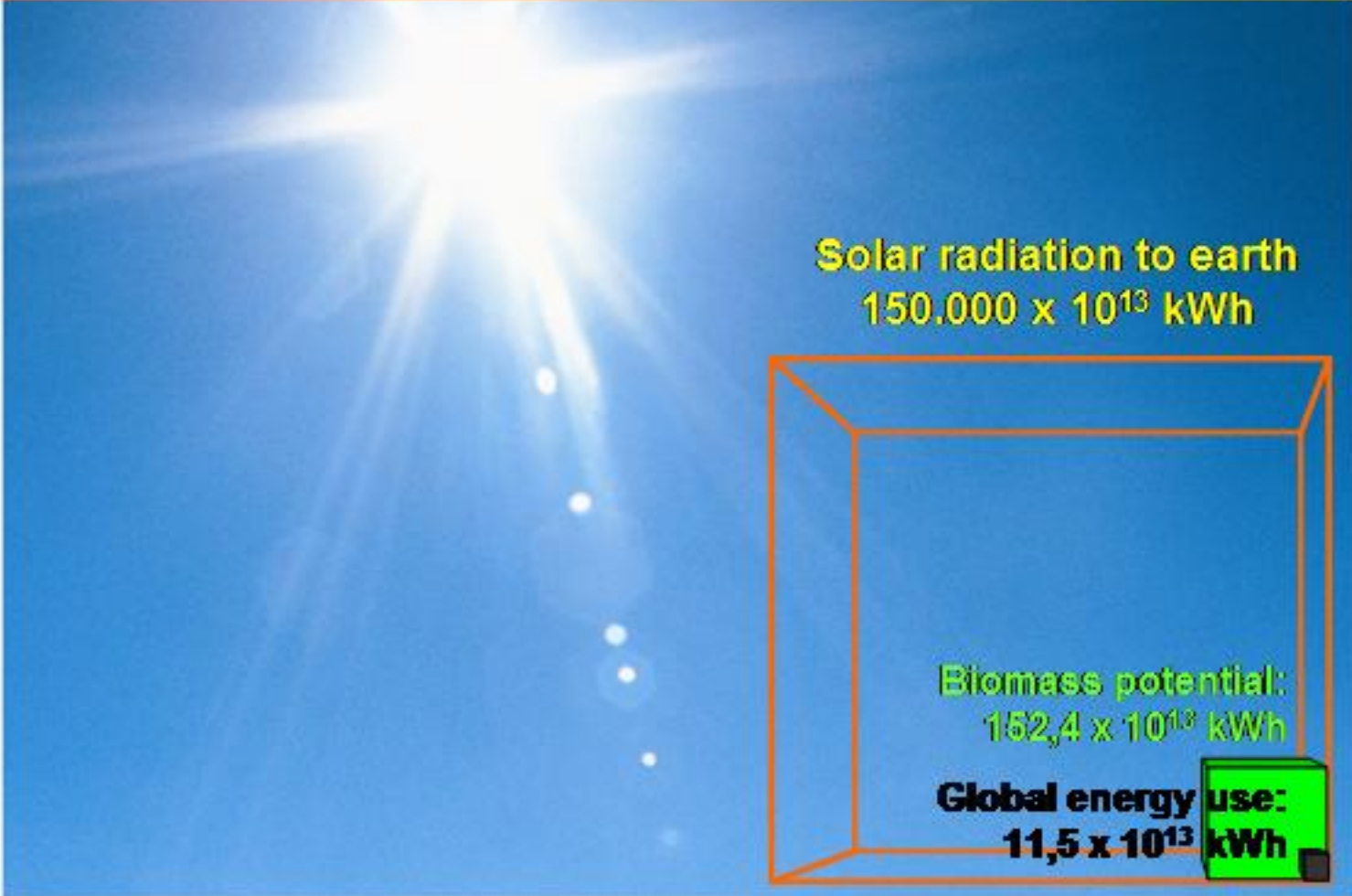


- Andere Erneuerbare **Other Renewables**
- Solarthermie (nur Wärme) **Solar heat**
- Solarstrom (Photovoltaik und solarthermische Kraftwerke) **Solar Power**
- Wind **Wind**
- Biomasse **Biomass**
- Wasserkraft **Hydro**
- Kernenergie **Nuclear**
- Gas **Gas**
- Kohle **Coal**
- Öl **Oil**

Quelle: solarwirtschaft.de



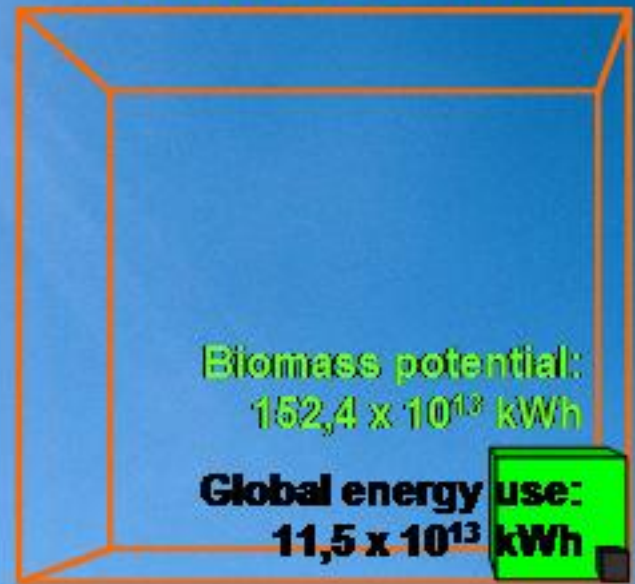
Potential - Energy from the sun



Solar radiation to earth
 150.000×10^{13} kWh

Biomass potential:
 $152,4 \times 10^{13}$ kWh

Global energy use:
 $11,5 \times 10^{13}$ kWh







PV will be the next Brazilian ethanol programme!

- **Prices will come down considerably**
- **Technology will have much better performance**
- **PV power will be the cheapest off grid source**
- **Safe operation of unskilled personal is key**
- **Lifespan of 20 years plus will be common**
- **PV hybrid grids will be future in off grid applications**
- **Building integration (solar surfaces) will make it competitive by being a multiple use product**

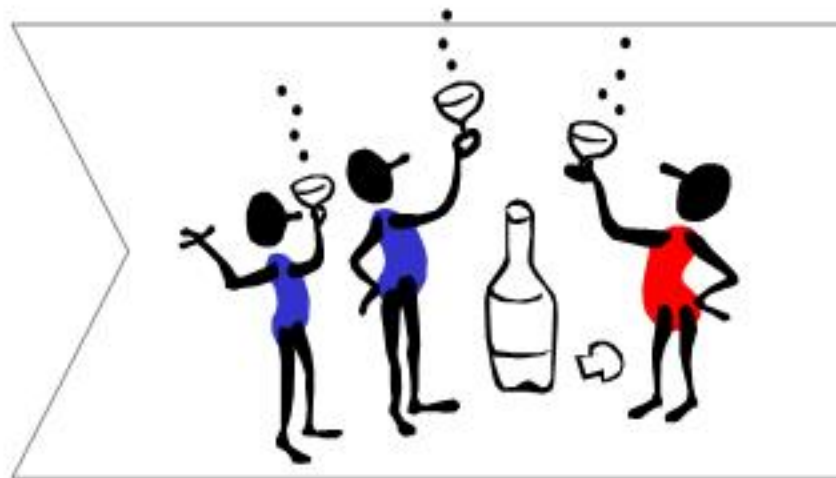
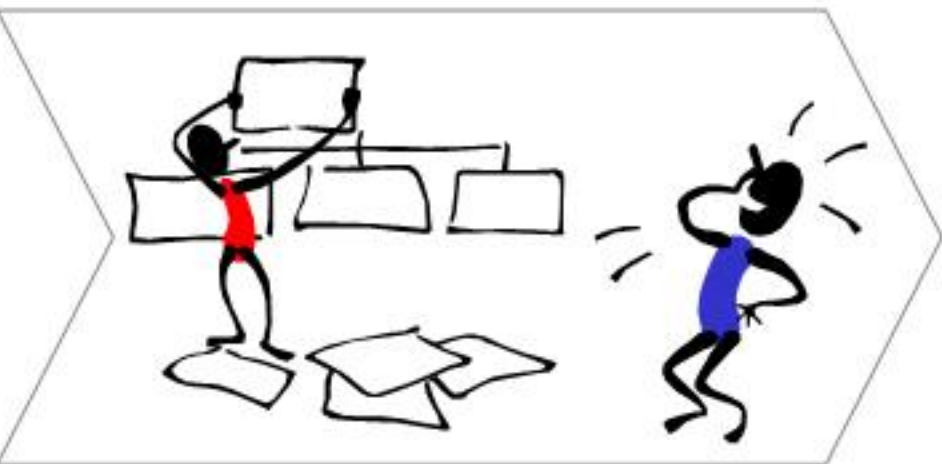
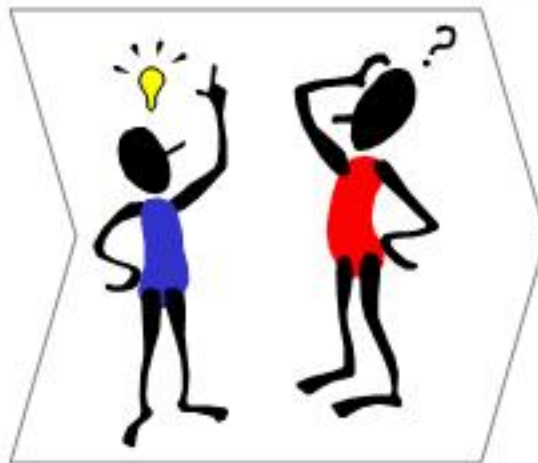


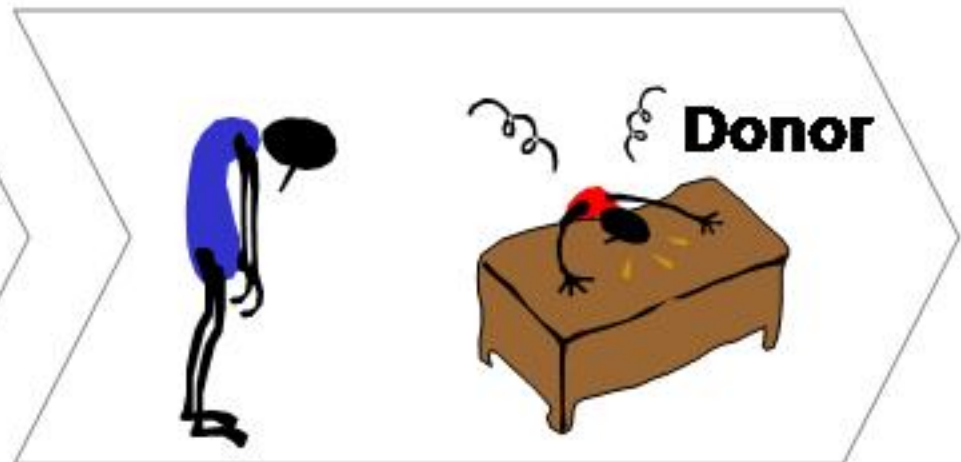
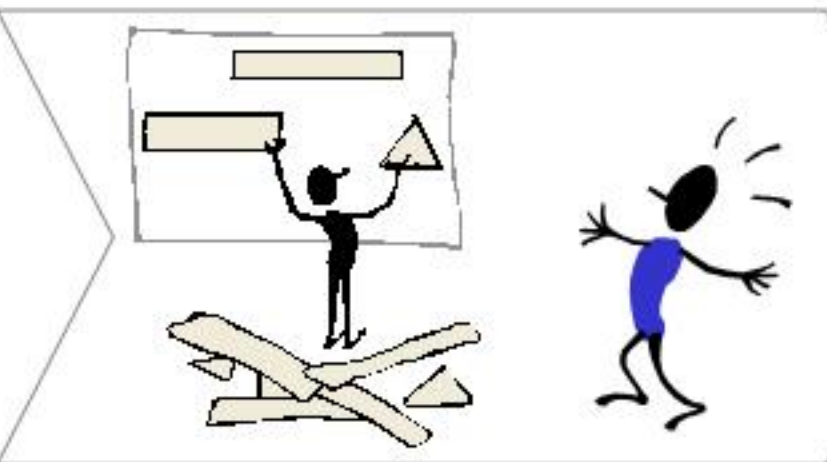
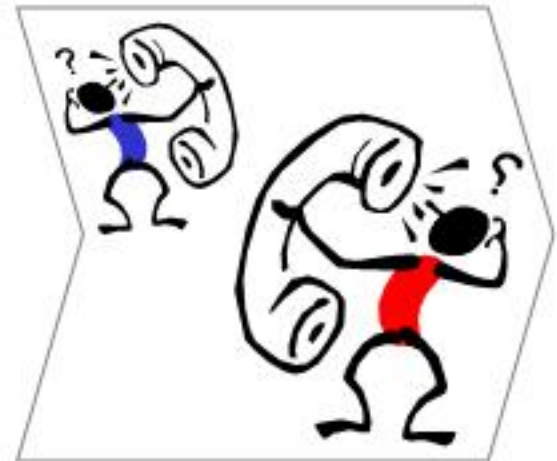
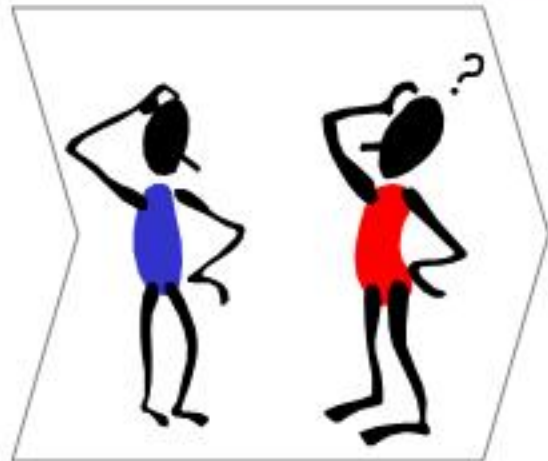
Thank You !
Gracias !

Call for participation

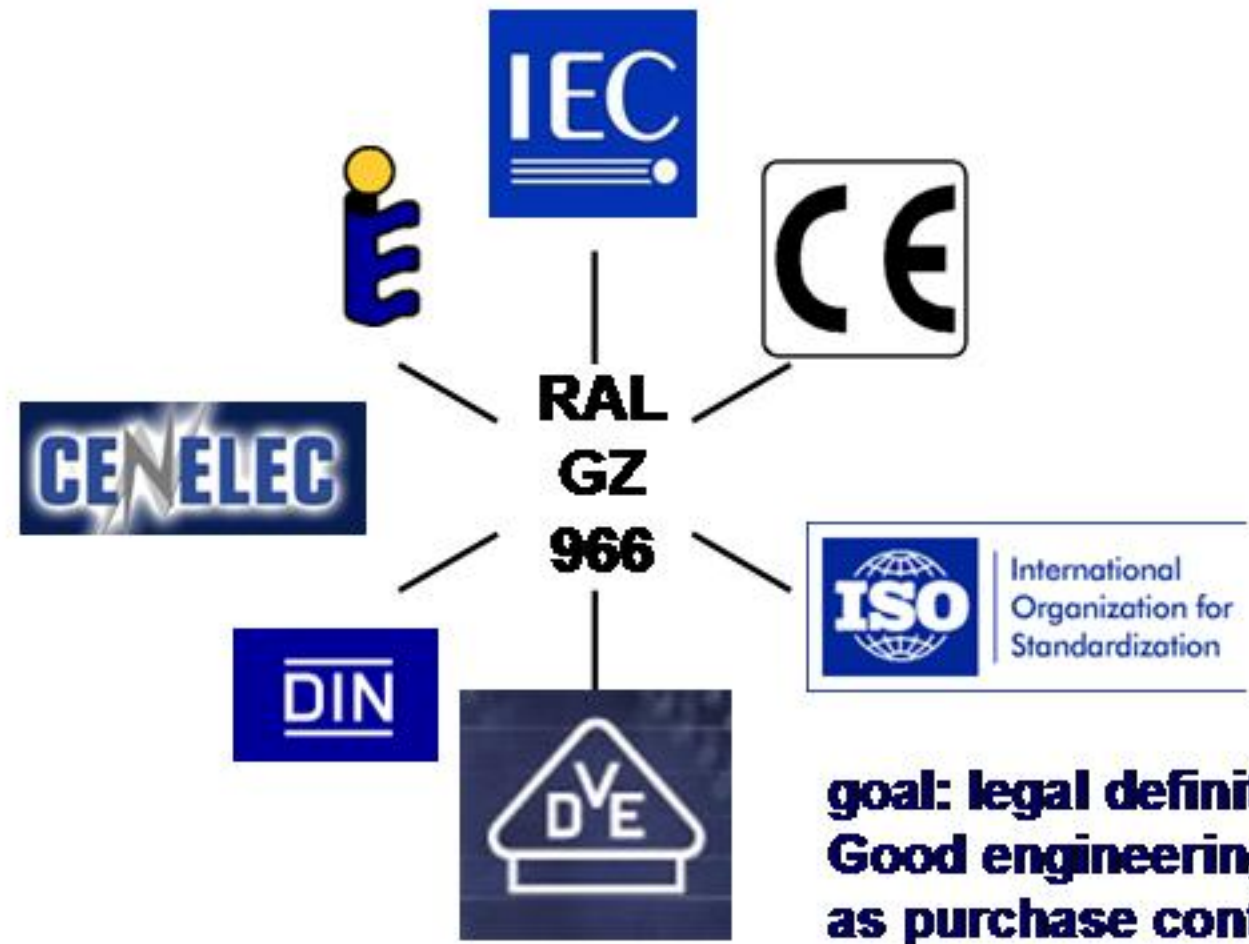


- fight PV failure by bad implementation
 - protect poorest PV investors (off grid) by utilizing legally binding purchase standards
 - Smarter purchase agreements of governments/donors with industry and installers
 - locally certified quality programmes which are nationally adapted and internationally assisted
- ⇒ Partner agencies sought that commit to translate and nationally adapt and implement the Bonn conference taks RAL GZ 966





Integration of existing standards



goal: legal definition
Good engineering practice
as purchase contract basis



Field: Photovoltaics

P1 components	(producer)
P2 conception	(planner)
P3 execution	(craftsmen)
P4 operation	(operators)

Field: Solar thermal

P1 components	(producer)
P2 conception	(planner)
P3 execution	(craftsmen)
P4 operation	(operators)



Bonn

International Action Programme (165Projects) legal technical guidelines ready as part of the civil society contribution (IAP: RAL GZ 966)

⇒ **Readily available free to use for purchasers**

⇒ **like golf rules, nationally freely adaptable**

⇒ **open too all nations, Partners sought for national implementation (matrix approach)**



- **How can Government / Donors act?**
=> smart negotiation with industry (customer is king!)
- **Food for thought:**
 - Utilization of legally binding technical purchasing standards for all donor programmes
 - Payment of delivered capacity not contract based
 - Time lag in pay according to quality performance (partial payment after 5, 10, 15 years etc.)



**Should government / donors trust
the solar industry ?**

OR

**Shouldn't the industry trust the
governments / donors ?**



Consumer Protection Issues / Safety and Investment

Legally binding basic standards which will protect the investment of the government, the operators and/or the customers from miss-investment due to faulty equipment. Here the government needs to utilize its consumer protection powers.

Market Issues / Donor vs Market:

Donor Programmes should be carefully applied in order to avoid uneven competition with private initiatives

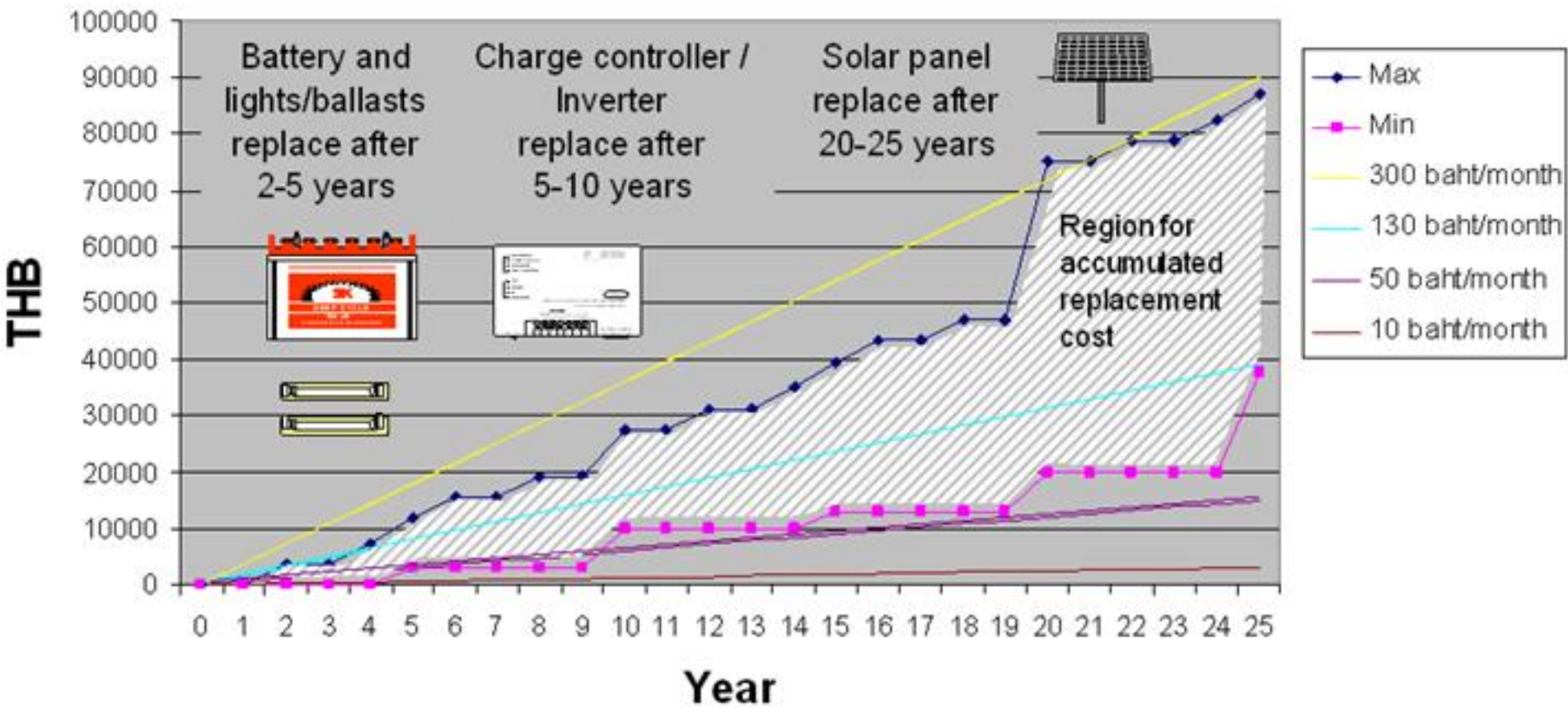


Legal Issues:

- **Lawmakers should focus of the proposed legislation for renewable energies serious. Renewable energies can only become a sustainable lasting power source if investors have security.**

Education Issues:

- **A clear focus on education for installers, operators, planners and administrative staff is required to set the intellectual basis for success. However sufficient education is only one side of the coin for the successful sustainable delivery of power to the regions desired.**





Missing linkages

