D-Lab Development
2009.10.07

Jim Bales | Strobe Lab in Edgerton
PHOTOVOLTAIC SYSTEMS

- Knows about underlying physical processes of what goes on in voltaics

- Built underwater submarines to explore ocean (past exp.)

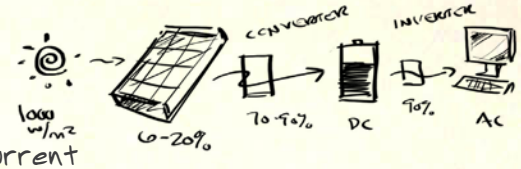
"There are no good batteries"

- Units of power - WATTS

Typical D-Lab Watts Projects

lightbulb	20-100W
cellphone	4W Hr (I missed this explanation)
microwave	800 - 1500W
fridge	100 - 400W
computer	100-300W
Motor	

Solar Resource
- Ideally: 1000W sq/m @ high noon
- Hard to actually achieve because of efficiency levels (6-20%)



Direct Current
- good for transfering

Alternating Current

Available Power -> What you can get out of it

Links for SOLAR RESOURCE of various locations on Earth ... http://???
- Annual / Monthly / Daily
- Avg. (W/hr)/Day of installation

Panel Efficiency specified as
- Peak Power @ Area
- at 1,000 w/sq. meters at AM 1.5
  - (typical of Europe & North America)

Supply Side UP
Demand Side Down

Appliance Power Level	Hours/Day Used	Energy/Day
Fridge 100W	24	2400Whr
Cellphone		8Whr
Microwave	1	800Whr
		3208 Whr

This is the amount that must be produced on avg

1. Know/Ask Daily Demand
2. Specify Longest blackout I can endure

Informs:
battery must hold avg. use daily x days of blackout

IDEAL BATTERY (a bomb)
- small
- lightweight
- lots energy
  EXCEPT: we want to extract the energy slowly

THEFT/ the biggest issue with installing solar panels
depends on where you are

computer 100-300W
Motor

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SP.721 / 11.025J / 11.472 D-Lab I: Development

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