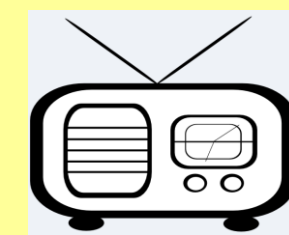


**WIL (Water Is Light) is a small hydropower system consisting of**

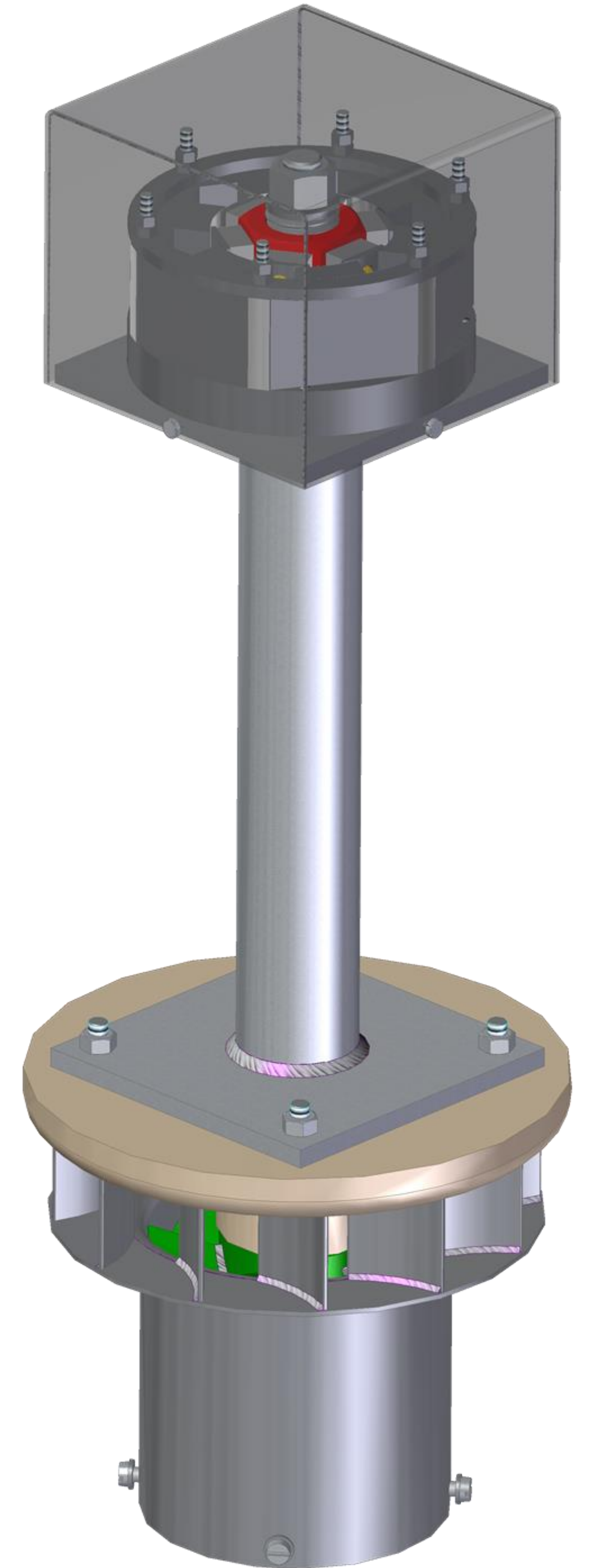
- Low-Head-waterturbine, Kaplan-type, with direct drive generator
- Electronic Controller for output 230V/50Hz, AC
- Rated power 300W @ 2m head, 35 liter/second flow

**Single unit of WIL-System of 300 Watt is capable to provide electricity for household of 2-3 families:**

e.g. 20 lamps (20 x LED, 4 Watt)  
+ radio, TV, charging batteries for mobiles, flashlights  
+ small fridge-box for food, medicine



**Good thing:** Energy day and night 24/7 !  
No need for expensive batteries !



**More than this:**

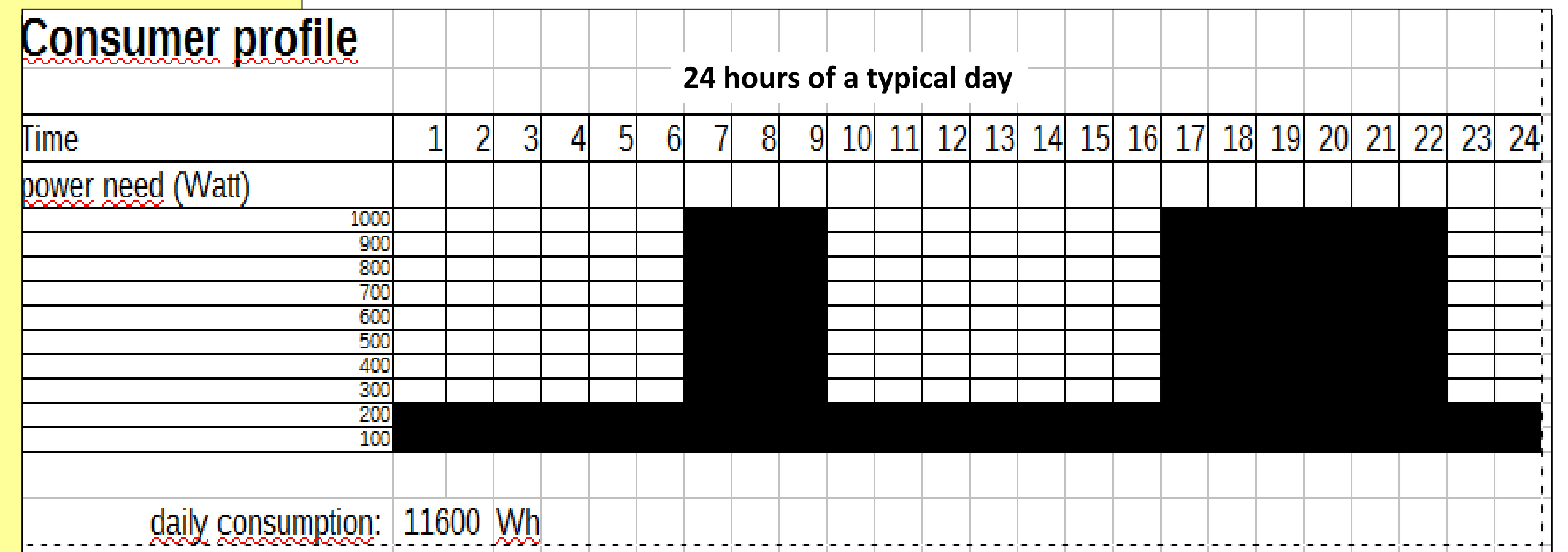
In combination with PV- and battery very cost-efficient systems can be configured.

It is much more efficient than PV alone and provides valuable redundancy in case of failure of a single technology.

**Comparison for different system-configurations:**

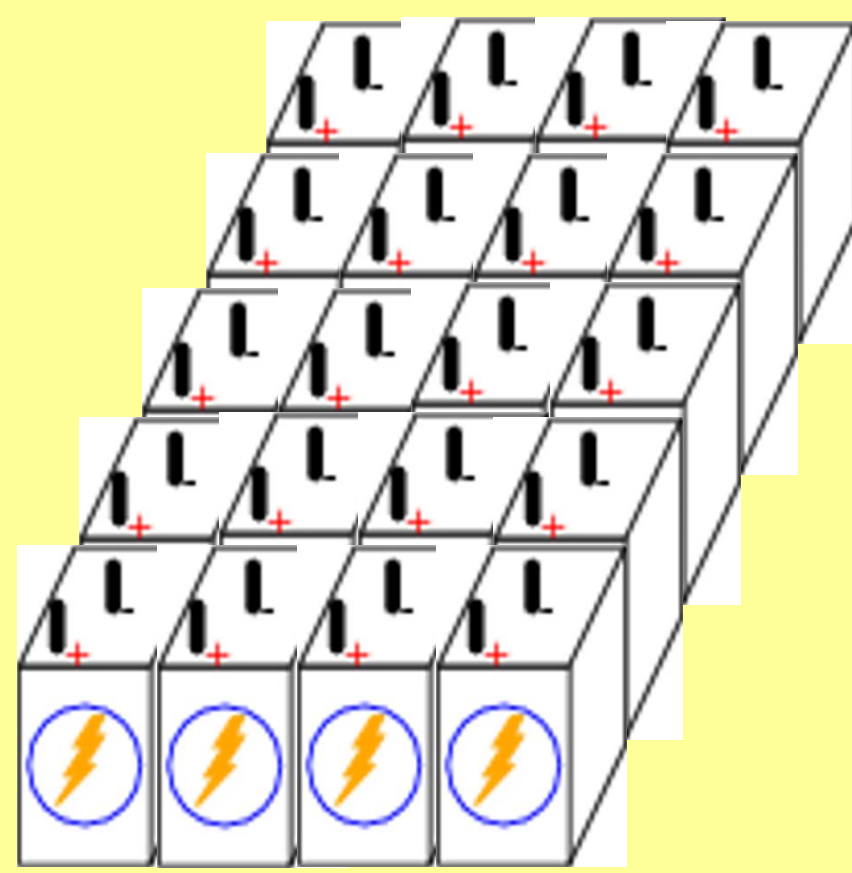
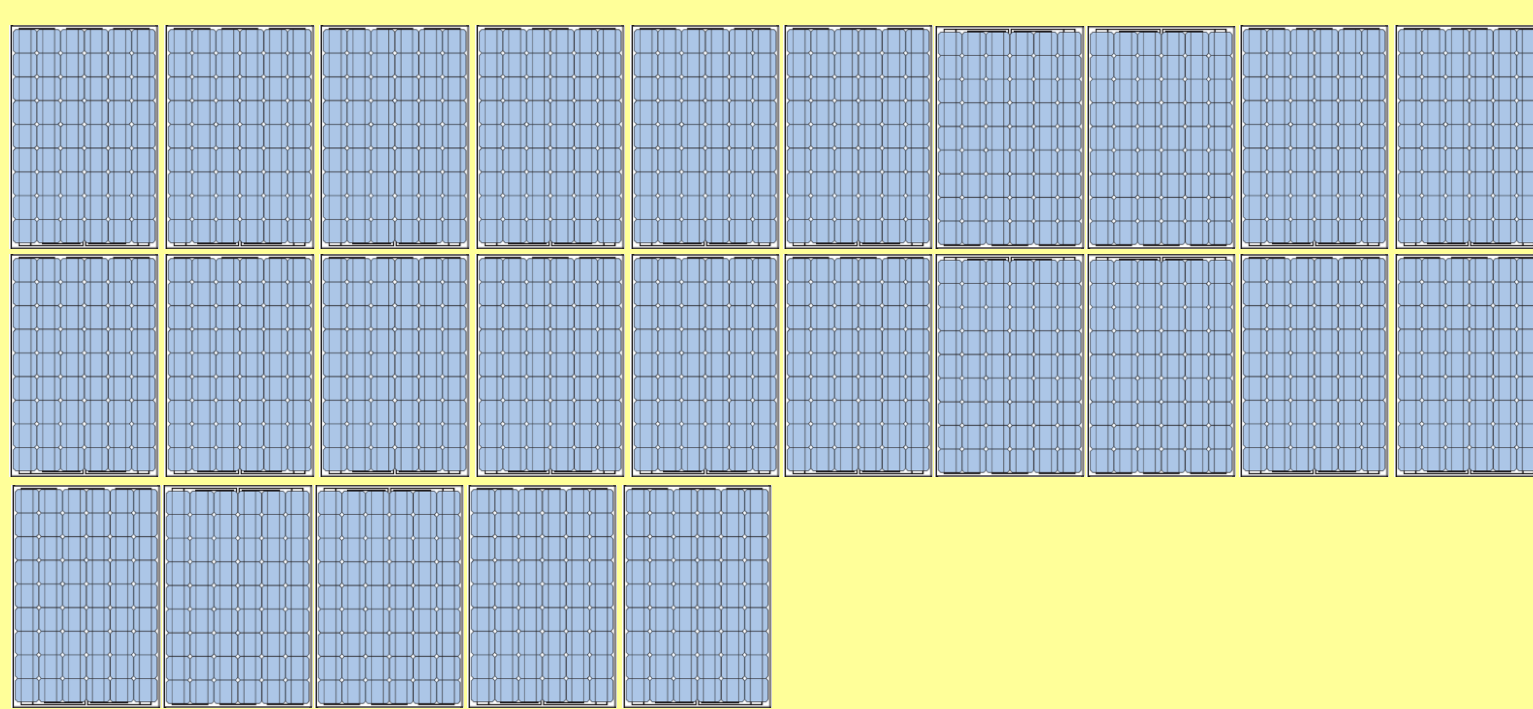
Business Case is the electrification of 20 houses of a plantation. The user profile in terms of electricity-consumption during 1 day is shown in the chart:

- morning, 6-9 am 1kW is needed for light, cooking, communication
- during day 10am-4pm people are at work or busy outside the houses
- evening, 4pm -10pm again much energy is consumed inhouse



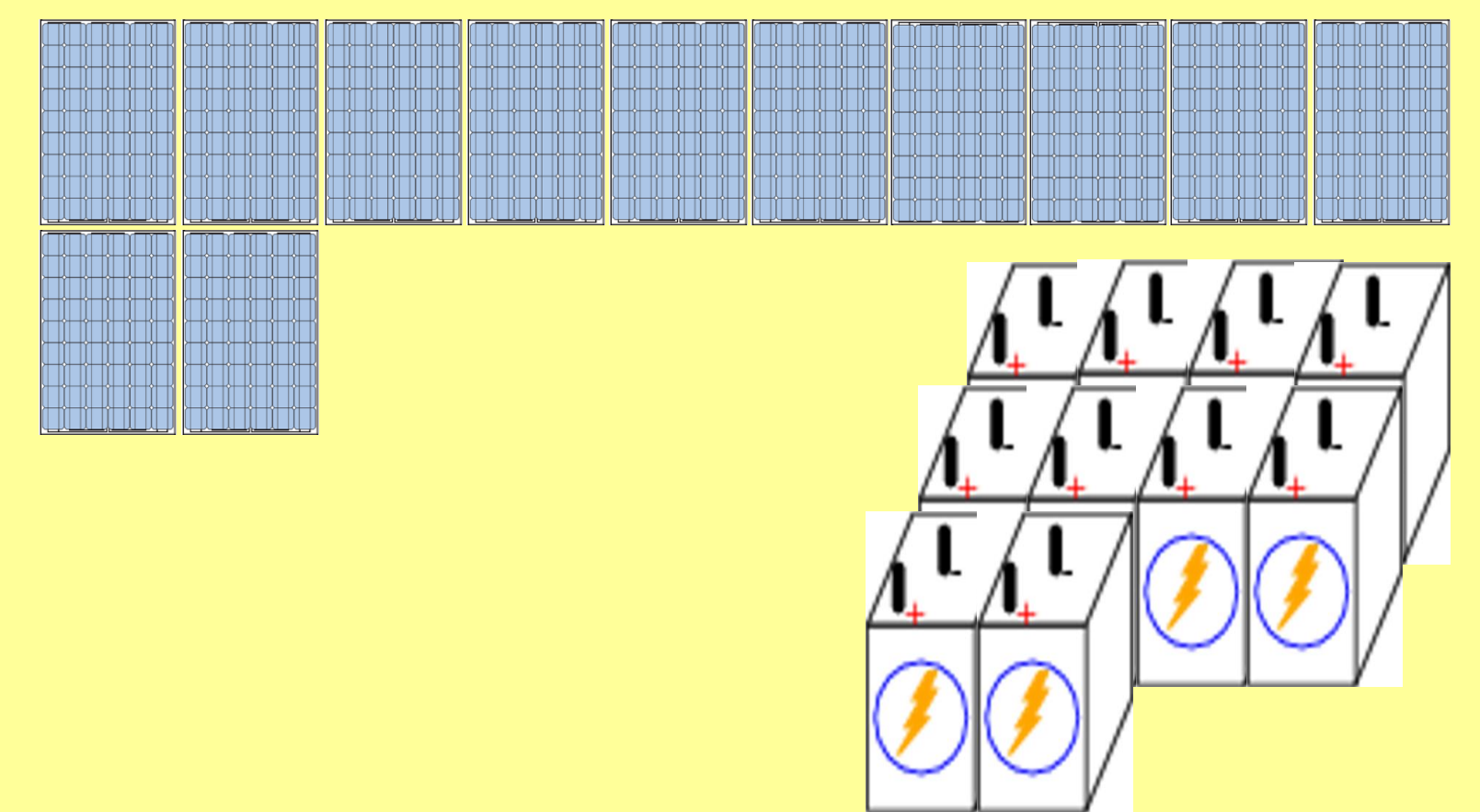
To cover the need for electricity following system variants are feasible. Total costs for 5 years operation including maintenance and service is considered.

**System A:  
PV only (7 kWp) + battery set (36.000 Wh)**



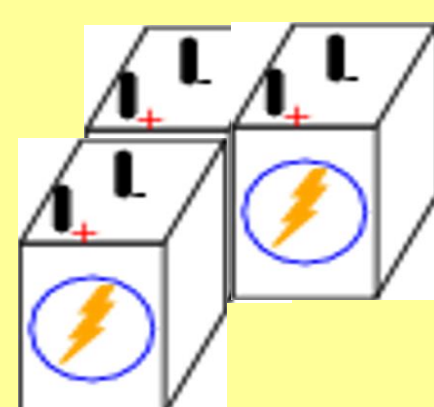
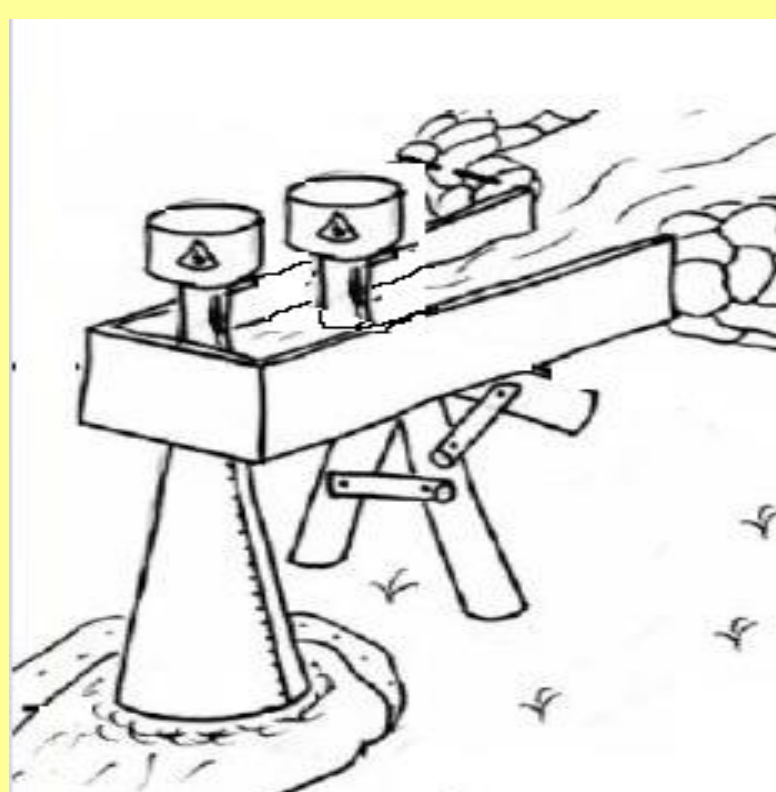
**Total Cost over 5 years: 19.600€** incl new set of batteries

**System B:  
1 WIL-turbine + 3kWp PV + batteries (17.500 Wh)**



**Total Cost over 5 years: 12.240€** incl new set of batteries

**System C:  
2 WIL-turbines (300W each) + batteries (4.500 Wh)**



**Total Cost over 5 years: 5.800€** incl new set of batteries

**System D:  
Just gasoline generator 1kW**



**Fuel consumption over 5 years:**

**10.200 Liter = 51 barrels**

**Total Cost over 5 years: 14.720 € (1€ / Liter)**