# UNIMAGIC

# CALCULATION OF YOUR INSTALLATION

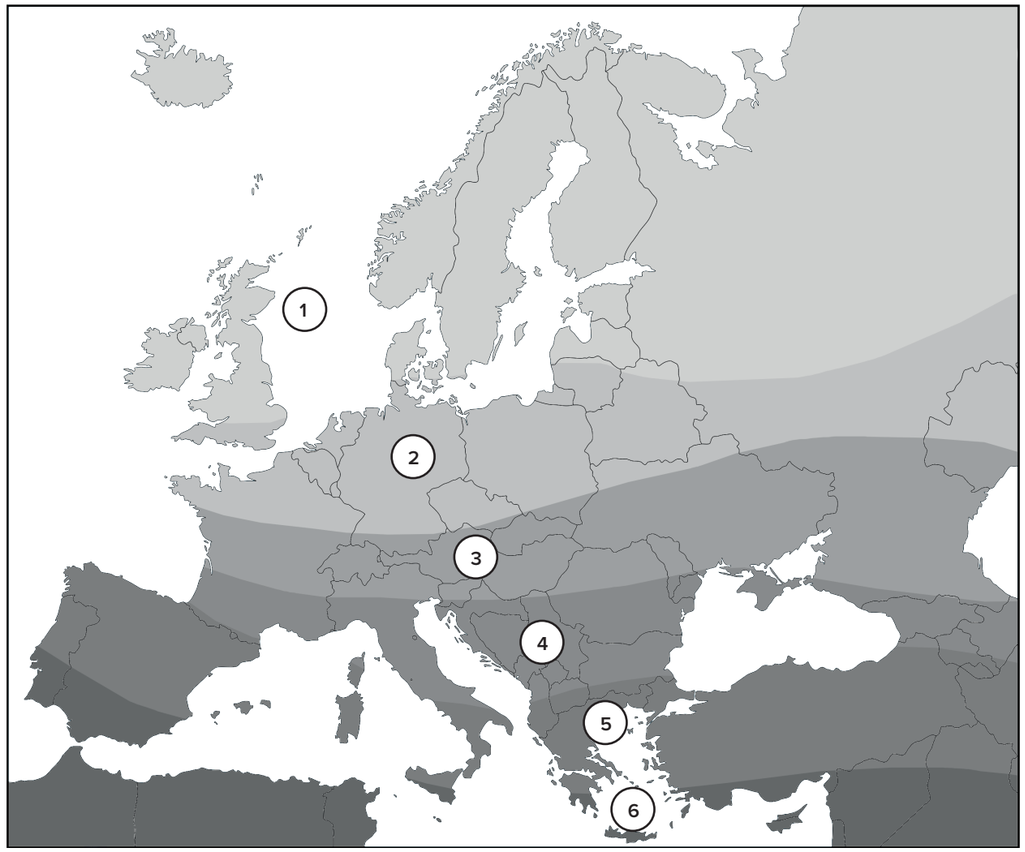
Here are four key factors to consider when measuring/calculating your solar installation.

- your consumption per day (B),
- geographical area (A),
- season of use (C),
- frequency of use (7/7 or week-end)

For heating system (oven, hot water, ...etc.), we recommend you to use gas.

## A CHOOSE YOUR GEOGRAPHICAL AREA

The choice of the geographical area (A), will allow you to find your production coefficient (C) and safety coefficient (D) (p.120).
Identifying your geographical area (A), this will allow you to determine the number of days of backup power in case of no sunlight




## B CALCULATE YOUR CONSUMPTION/J

Indicate your daily consumption
in watts hour per day (Wh/d)

### LIGHTS ⓘ LED

Power (W) ____ X Duration (h) ____ X Quantity ____ SUBTOTAL ____

Power (W) ____ X Duration (h) ____ X Quantity ____ SUBTOTAL ____

TOTAL ____ Wh/d

### TV SCREEN ⓘ LED ≃ 50W

Power (W) ____ X Duration of use (h) ____ TOTAL ____ Wh/d

### TABLET ⓘ ≃ 10W

Power (W) ____ X Duration of use (h) ____ TOTAL ____ Wh/d

### FRIDGE ⓘ A++

| | Winter | Aut./Spring | Summer |
|---|---|---|---|
| 50 L | 300 W | 400 W | 500 W |
| 100 L | 400 W | 560 W | 700 W |
| 150 L | 500 W | 750 W | 1000 W |

TOTAL ____ Wh/d

### MICROWAVE ⓘ max 900W

Power (W) ____ X Duration of use (h) ____ TOTAL ____ Wh/d

### PHONE / SMARTPHONE ⓘ ≃ 5W

Power (W) ____ X Duration of use (h) ____ TOTAL ____ Wh/d

### COMPUTER ⓘ LAPTOP ≃ 60W DESKTOP ≃ 150W

Power (W) ____ X Duration of use (h) ____ TOTAL ____ Wh/d

### DIVERSE

Power (W) ____ X Duration of use (h) ____ TOTAL ____ Wh/d

Power (W) ____ X Duration of use (h) ____ TOTAL ____ Wh/d

Power (W) ____ X Duration of use (h) ____ TOTAL ____ Wh/d

Power (W) ____ X Duration of use (h) ____ TOTAL ____ Wh/d

ⓘ Calculation reminder :

| | | |
|---|---|---|
| Current | Amperes | A |
| Power | Watts | W |
| Voltage | Volts | V |

**Watts = Volts x Amperes**

ⓘ Read an identification plate : example with a drill

Model : XP 670
230V ≂ 50Hz 2,8A 600W

Voltage (in volts) — Current (in amperes) — Power (in watts)

**TOTAL B** ____ **Wh/d**

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# CALCULATION OF YOUR INSTALLATION

## C CHOOSE YOUR PRODUCTION COEFFICIENT

For your solar panel choice, it is important to consider in the calculation :
The season and the geographical area of use (A).

| | Summer | | | | | | Spring | | | | | | Automn | | | | | | Winter | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A → Area | 1 | 2 | 3 | 4 | 5 | 6 | 1 | 2 | 3 | 4 | 5 | 6 | 1 | 2 | 3 | 4 | 5 | 6 | 1 | 2 | 3 | 4 | 5 | 6 |
| → **Coef.** | 3,5 | 4 | | 5 | 4,5 | 4 | 2 | 3 | | 4 | 4 | 4,5 | 1 | 2 | | 3 | 3,5 | 4 | 0,5 | 0,7 | 1 | 1,5 | 1,8 | 2,5 |

On an annual use or several seasons, the sunshine coefficient to be taken into account in your calculations is always the lowest.

Eg : In Béziers, in South of France, a solar panel 100W produces 5 times more, so 500 W/day.

## D CHOOSE YOUR SAFETY COEFFICIENT

For your battery choice, it is important to consider in the calculation: the season and the geographical zone of use (A), which will make it possible to know the number of days of safety storage in case of no sunlight.

| | Summer | | | | | | Spring | | | | | | Automn | | | | | | Winter | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A → Area | 1 | 2 | 3 | 4 | 5 | 6 | 1 | 2 | 3 | 4 | 5 | 6 | 1 | 2 | 3 | 4 | 5 | 6 | 1 | 2 | 3 | 4 | 5 | 6 |
| → **Coef.** | 2,5 | 2 | | | | | 3,5 | 2,5 | | | | | 5 | 3,5 | | 3 | | | 8 | 5 | 4 | 3 | | |
| Days equi. | 3 | 2 | | | | | 5 | 3 | | | | | 8 | 5 | | 4 | | | 12 | 8 | 6 | 4 | | |

On an annual use or several seasons, the battery security coefficient to be taken into account in your calculation is always the highest.



## MEMO POINT

A = Geographical area

B = Consumption/day

C = Production coef.

D = Safety coef.

## WEEK-END USE

**Panel need**

B (Total consum. / day) x 2 (2 days week-end) / 5 (5 days week) / C (Season coef.) = **Your need in W**

Recommended inclination in France : 0° to 30° in Summer - 30° to 40° in Spring - 40° to 50° in Automn - 60° in Winter

**Battery need**

B (Total consum. / day) / 12V (Battery voltage) x 2 (2 days week-end) x 2 (50% discharge) = **Your need in Ah**

## 7/7 USE

**Panel need**

B (Total Consum. / day) / C (Season coef.) = **Your need in Wc**

Recommended inclination in France : 0° to 30° in Summer - 30° to 40° in Spring - 40° to 60° in Autumn - 60° in Winter

**Battery need**

B (Total consum. / day) / 12V (Battery voltage) x D (Season coef.) x 2 (50% discharge) = **Your need in Ah**