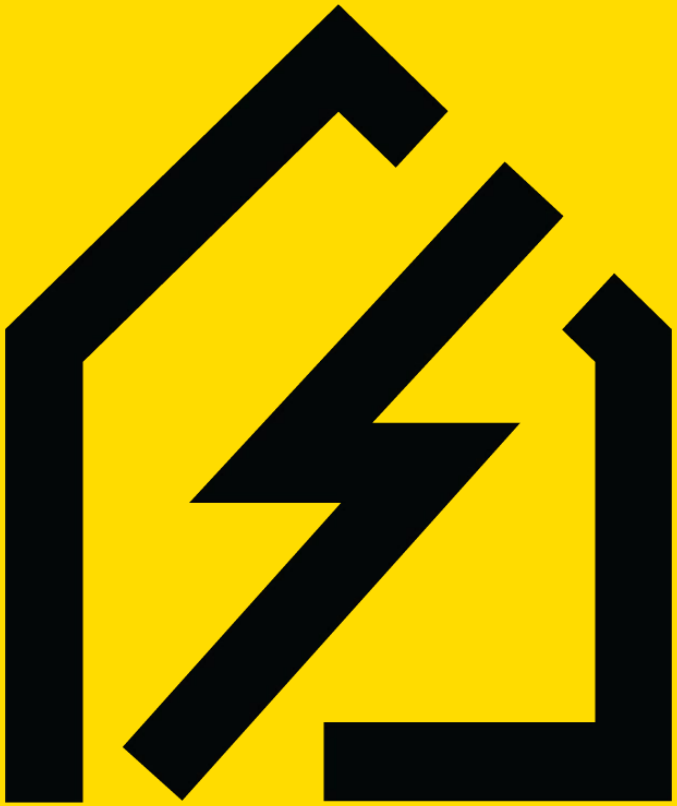
PRACTICAL EXAMPLE

Calculations for the consumption/injection of your facility



E-REDES

E-REDES

Understand how your facility's consumption/injection calculations are made

Practical example based on an Excel exported from the Digital Counter

The data appears in 15-minute intervals. This is because consumption related to self-consumption is calculated based on the **Quarter-Hourly Balance** (or Saldo Quarto Horário - SQH, in portuguese) (i.e., every 15 minutes).

This balance determines the values that will be considered for billing the consumption contract and for the surplus sale contract (if applicable).

What represents each column?

	A	B	C	D	E	F	G	H	I	J	K	L
15	Data	Hora	Consumo medido na IC, Ativa (kW)	Estado	Injeção na rede medida na IC, Ativa (kW)	Estado	Consumo registado (kW)	Estado	Injeção registada (kW)	Estado	Valor após SQH	
16	2024/03/01	00:15	0,872	Real	0	Real	0,872	Real	0	Real	0,872	Consumo
17	2024/03/01	00:30	0,796	Real	0	Real	0,796	Real	0	Real	0,796	Consumo
18	2024/03/01	00:45	0,828	Real	0	Real	0,828	Real	0	Real	0,828	Consumo
19	2024/03/01	01:00	0,764	Real	0	Real	0,764	Real	0	Real	0,764	Consumo
20	2024/03/01	01:15	0,74	Real	0	Real	0,74	Real	0	Real	0,74	Consumo
21	2024/03/01	01:30	0,5	Real	0	Real	0,5	Real	0	Real	0,5	Consumo
22	2024/03/01	01:45	0,264	Real	0	Real	0,264	Real	0	Real	0,264	Consumo

Column A
Date

Column B
Time
The measurements are taken every quarter-hour (15-minute period).

Column C
Measured Consumption at the CF (Consumption Facility), Active (kW)
Accounts for the consumption recorded in a specific quarter-hour (15-minute period) after calculating the Quarter-Hourly Balance (SQH).

Columns D, F, H, J
Status
The data always corresponds to actual values.

Column E
Injection into the Grid Measured at the CF (Consumption Facility), Active (kW)
Accounts for the injection recorded in a specific quarter-hour, after applying the Quarter-Hourly Balance (SQH).

Column G
Registered Consumption Status (kW)
Accounts for the total consumption recorded in a specific quarter-hour. Used to calculate the **Quarter-Hourly Balance (SQH)**.

Column I
Registered Injection Status (kW)
Accounts for the total injection recorded in a specific quarter-hour. Used to calculate the **Quarter-Hourly Balance (SQH).**

Column K
Value after SQH
If the value is positive, the balance results in a Consumption (column C). If it is negative, it results in an Injection (column E).

Column L
Consumption / Injection
Depending on the values after SQH (positive or negative), there will be either consumption or injection during the respective quarter-hour (15-minute period).

Understand how your facility's consumption/injection calculations are made

Practical example based on an Excel exported from the Digital Counter

Practical examples for calculating consumption

How to interpret the values of each row

Example: March 1 - Between 8h45 and 9h00

	A	B	C	D	E	F	G	H	I	J	K	L
15	Data	Hora	Consumo medido na IC, Ativa (kW)	Estado	Injeção na rede medida na IC, Ativa (kW)	Estado	Consumo registado (kW)	Estado	Injeção registada (kW)	Estado	Valor após SQH	
51	2024/03/01	09:00	0,148	Real	0	Real	0,204	Real	0,056	Real	0,148	Consumo

- Consumed: **0,204 kW** / (Column G)
- Injected into the grid: **0,056 kW** / (Column I)

The registered consumption was higher than the registered injection, the **Quarter-Hourly Balance** (SQH) = 0.204 - 0.056 = 0.148 (Column K).
A **positive** SQH means that the interval resulted in a **consumption** (Column L).

Example: March 1 - Between 11h00 and 11h15

	A	B	C	D	E	F	G	H	I	J	K	L
15	Data	Hora	Consumo medido na IC, Ativa (kW)	Estado	Injeção na rede medida na IC, Ativa (kW)	Estado	Consumo registado (kW)	Estado	Injeção registada (kW)	Estado	Valor após SQH	
60	2024/03/01	11:15	0	Real	0,256	Real	0,136	Real	0,392	Real	-0,256	Injeção

- Consumed: **0,136 kW** (Column G)
- Injected into the Grid: **0,392 kW** / (Column I)

The registered consumption was lower than the registered injection, so the **Quarter-Hourly Balance** (SQH) = 0.136 - 0.392 = **-0.256** (Column K).
A **negative** SQH means that the interval resulted in an **injection** (Column L).
The **measured consumption at the CF** (Column C) is therefore **0 kW, and the measured injection into the grid at the CF** (Column E) is **0.256 kW.**

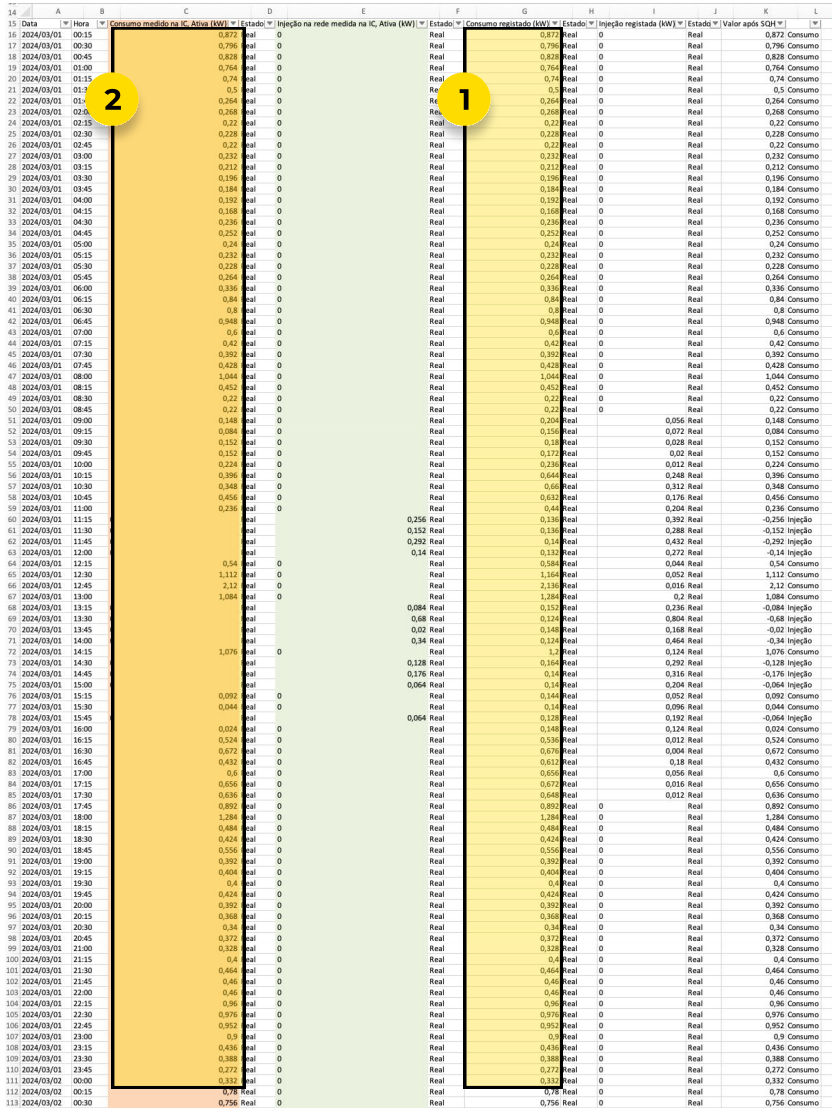
E-REDES

Understand how your facility's consumption/injection calculations are made

Practical example based on an Excel exported from the Digital Counter

Practical examples for calculating consumption

How to calculate the consumed/injected value for one day



Data	Hora	Consumo medido na IC, Ativa (kW)	Estado	Injeção na rede medida na IC, Ativa (kW)	Estado	Consumo registado (kW)	Estado	Injeção registada (kW)	Estado	Valor após SQH	
2024/03/01	00:15	0,872	Real	0	Real	0,872	Real	0	Real	0,872	Consumo
2024/03/01	00:30	0,796	Real	0	Real	0,796	Real	0	Real	0,796	Consumo
2024/03/01	00:45	0,828	Real	0	Real	0,828	Real	0	Real	0,828	Consumo
2024/03/01	01:00	0,764	Real	0	Real	0,764	Real	0	Real	0,764	Consumo
2024/03/01	01:15	0,74	Real	0	Real	0,74	Real	0	Real	0,74	Consumo
2024/03/01	01:3	0,5	Real	0	Re	0,5	Real	0	Real	0,5	Consumo
2024/03/01	01:	0,264	Real	0	Re	0,264	Real	0	Real	0,264	Consumo
2024/03/01	02:0	0,268	Real	0	Re	0,268	Real	0	Real	0,268	Consumo
2024/03/01	02:15	0,22	Real	0	Real	0,22	Real	0	Real	0,22	Consumo
2024/03/01	02:30	0,228	Real	0	Real	0,228	Real	0	Real	0,228	Consumo
2024/03/01	02:45	0,22	Real	0	Real	0,22	Real	0	Real	0,22	Consumo
2024/03/01	03:00	0,232	Real	0	Real	0,232	Real	0	Real	0,232	Consumo
2024/03/01	03:15	0,212	Real	0	Real	0,212	Real	0	Real	0,212	Consumo
2024/03/01	03:30	0,196	Real	0	Real	0,196	Real	0	Real	0,196	Consumo
2024/03/01	03:45	0,184	Real	0	Real	0,184	Real	0	Real	0,184	Consumo
2024/03/01	04:00	0,192	Real	0	Real	0,192	Real	0	Real	0,192	Consumo
2024/03/01	04:15	0,168	Real	0	Real	0,168	Real	0	Real	0,168	Consumo
2024/03/01	04:30	0,236	Real	0	Real	0,236	Real	0	Real	0,236	Consumo
2024/03/01	04:45	0,252	Real	0	Real	0,252	Real	0	Real	0,252	Consumo
2024/03/01	05:00	0,24	Real	0	Real	0,24	Real	0	Real	0,24	Consumo
2024/03/01	05:15	0,232	Real	0	Real	0,232	Real	0	Real	0,232	Consumo
2024/03/01	05:30	0,228	Real	0	Real	0,228	Real	0	Real	0,228	Consumo
2024/03/01	05:45	0,264	Real	0	Real	0,264	Real	0	Real	0,264	Consumo
2024/03/01	06:00	0,336	Real	0	Real	0,336	Real	0	Real	0,336	Consumo
2024/03/01	06:15	0,84	Real	0	Real	0,84	Real	0	Real	0,84	Consumo
2024/03/01	06:30	0,8	Real	0	Real	0,8	Real	0	Real	0,8	Consumo
2024/03/01	06:45	0,948	Real	0	Real	0,948	Real	0	Real	0,948	Consumo
2024/03/01	07:00	0,6	Real	0	Real	0,6	Real	0	Real	0,6	Consumo
2024/03/01	07:15	0,42	Real	0	Real	0,42	Real	0	Real	0,42	Consumo
2024/03/01	07:30	0,392	Real	0	Real	0,392	Real	0	Real	0,392	Consumo
2024/03/01	07:45	0,428	Real	0	Real	0,428	Real	0	Real	0,428	Consumo
2024/03/01	08:00	1,044	Real	0	Real	1,044	Real	0	Real	1,044	Consumo
2024/03/01	08:15	0,452	Real	0	Real	0,452	Real	0	Real	0,452	Consumo
2024/03/01	08:30	0,22	Real	0	Real	0,22	Real	0	Real	0,22	Consumo
2024/03/01	08:45	0,22	Real	0	Real	0,22	Real	0	Real	0,22	Consumo
2024/03/01	09:00	0,148	Real	0	Real	0,204	Real	0,056	Real	0,148	Consumo
2024/03/01	09:15	0,084	Real	0	Real	0,156	Real	0,072	Real	0,084	Consumo
2024/03/01	09:30	0,152	Real	0	Real	0,18	Real	0,028	Real	0,152	Consumo
2024/03/01	09:45	0,152	Real	0	Real	0,172	Real	0,02	Real	0,152	Consumo
2024/03/01	10:00	0,224	Real	0	Real	0,236	Real	0,012	Real	0,224	Consumo
2024/03/01	10:15	0,396	Real	0	Real	0,644	Real	0,248	Real	0,396	Consumo
2024/03/01	10:30	0,348	Real	0	Real	0,66	Real	0,312	Real	0,348	Consumo
2024/03/01	10:45	0,456	Real	0	Real	0,632	Real	0,176	Real	0,456	Consumo
2024/03/01	11:00	0,236	Real	0	Real	0,44	Real	0,204	Real	0,236	Consumo
2024/03/01	11:15		Real	0,256	Real	0,136	Real	0,392	Real	-0,256	Injeção
2024/03/01	11:30		Real	0,152	Real	0,136	Real	0,288	Real	-0,152	Injeção
2024/03/01	11:45		Real	0,292	Real	0,14	Real	0,432	Real	-0,292	Injeção
2024/03/01	12:00		Real	0,14	Real	0,132	Real	0,272	Real	-0,14	Injeção
2024/03/01	12:15	0,54	Real	0	Real	0,584	Real	0,044	Real	0,54	Consumo
2024/03/01	12:30	1,112	Real	0	Real	1,164	Real	0,052	Real	1,112	Consumo
2024/03/01	12:45	2,12	Real	0	Real	2,136	Real	0,016	Real	2,12	Consumo
2024/03/01	13:00	1,084	Real	0	Real	1,284	Real	0,2	Real	1,084	Consumo
2024/03/01	13:15		Real	0,084	Real	0,152	Real	0,236	Real	-0,084	Injeção
2024/03/01	13:30		Real	0,68	Real	0,124	Real	0,804	Real	-0,68	Injeção
2024/03/01	13:45		Real	0,02	Real	0,148	Real	0,168	Real	-0,02	Injeção
2024/03/01	14:00		Real	0,34	Real	0,124	Real	0,464	Real	-0,34	Injeção
2024/03/01	14:15	1,076	Real	0	Real	1,2	Real	0,124	Real	1,076	Consumo
2024/03/01	14:30		Real	0,128	Real	0,164	Real	0,292	Real	-0,128	Injeção
2024/03/01	14:45		Real	0,176	Real	0,14	Real	0,316	Real	-0,176	Injeção
2024/03/01	15:00		Real	0,064	Real	0,14	Real	0,204	Real	-0,064	Injeção
2024/03/01	15:15	0,092	Real	0	Real	0,144	Real	0,052	Real	0,092	Consumo
2024/03/01	15:30	0,044	Real	0	Real	0,14	Real	0,096	Real	0,044	Consumo
2024/03/01	15:45		Real	0,064	Real	0,128	Real	0,192	Real	-0,064	Injeção
2024/03/01	16:00	0,024	Real	0	Real	0,148	Real	0,124	Real	0,024	Consumo
2024/03/01	16:15	0,524	Real	0	Real	0,536	Real	0,012	Real	0,524	Consumo
2024/03/01	16:30	0,672	Real	0	Real	0,676	Real	0,004	Real	0,672	Consumo
2024/03/01	16:45	0,432	Real	0	Real	0,612	Real	0,18	Real	0,432	Consumo
2024/03/01	17:00	0,6	Real	0	Real	0,656	Real	0,056	Real	0,6	Consumo
2024/03/01	17:15	0,656	Real	0	Real	0,672	Real	0,016	Real	0,656	Consumo
2024/03/01	17:30	0,636	Real	0	Real	0,648	Real	0,012	Real	0,636	Consumo
2024/03/01	17:45	0,892	Real	0	Real	0,892	Real	0	Real	0,892	Consumo
2024/03/01	18:00	1,284	Real	0	Real	1,284	Real	0	Real	1,284	Consumo
2024/03/01	18:15	0,484	Real	0	Real	0,484	Real	0	Real	0,484	Consumo
2024/03/01	18:30	0,424	Real	0	Real	0,424	Real	0	Real	0,424	Consumo
2024/03/01	18:45	0,556	Real	0	Real	0,556	Real	0	Real	0,556	Consumo
2024/03/01	19:00	0,392	Real	0	Real	0,392	Real	0	Real	0,392	Consumo
2024/03/01	19:15	0,404	Real	0	Real	0,404	Real	0	Real	0,404	Consumo
2024/03/01	19:30	0,4	Real	0	Real	0,4	Real	0	Real	0,4	Consumo
2024/03/01	19:45	0,424	Real	0	Real	0,424	Real	0	Real	0,424	Consumo
2024/03/01	20:00	0,392	Real	0	Real	0,392	Real	0	Real	0,392	Consumo
2024/03/01	20:15	0,368	Real	0	Real	0,368	Real	0	Real	0,368	Consumo
2024/03/01	20:30	0,34	Real	0	Real	0,34	Real	0	Real	0,34	Consumo
2024/03/01	20:45	0,372	Real	0	Real	0,372	Real	0	Real	0,372	Consumo
2024/03/01	21:00	0,328	Real	0	Real	0,328	Real	0	Real	0,328	Consumo
2024/03/01	21:15	0,4	Real	0	Real	0,4	Real	0	Real	0,4	Consumo
2024/03/01	21:30	0,464	Real	0	Real	0,464	Real	0	Real	0,464	Consumo
2024/03/01	21:45	0,46	Real	0	Real	0,46	Real	0	Real	0,46	Consumo
2024/03/01	22:00	0,46	Real	0	Real	0,46	Real	0	Real	0,46	Consumo
2024/03/01	22:15	0,96	Real	0	Real	0,96	Real	0	Real	0,96	Consumo
2024/03/01	22:30	0,976	Real	0	Real	0,976	Real	0	Real	0,976	Consumo
2024/03/01	22:45	0,952	Real	0	Real	0,952	Real	0	Real	0,952	Consumo
2024/03/01	23:00	0,9	Real	0	Real	0,9	Real	0	Real	0,9	Consumo
2024/03/01	23:15	0,436	Real	0	Real	0,436	Real	0	Real	0,436	Consumo
2024/03/01	23:30	0,388	Real	0	Real	0,388	Real	0	Real	0,388	Consumo
2024/03/01	23:45	0,272	Real	0	Real	0,272	Real	0	Real	0,272	Consumo
2024/03/02	00:00	0,332	Real	0	Real	0,332	Real	0	Real	0,332	Consumo
2024/03/02	00:15	0,78	Real	0	Real	0,78	Real	0	Real	0,78	Consumo
2024/03/02	00:30	0,756	Real	0	Real	0,756	Real	0	Real	0,756	Consumo

Example: March 1

The calculation always starts from the row corresponding to 00:15, as it represents the first 15 minutes of the day, and ends at the row corresponding to 00:00 of the following day, as it includes the time interval from 23:45 to 00:00.

1. **The registered consumption (kW)** corresponds to the sum of all the rows from 00:15 on day 1 to 00:00 on day 2 in the respective column (G), resulting in a value of **44.684 kW.**

   To obtain this value in kWh, we need to convert the 15 minutes into hours, which is 0.25 hours. Therefore, the registered consumption in kWh in this case is 44.684 × 0.25 = **11,171 kWh**.

2. The **measured consumption** at the consumption facility (kW) corresponds to the sum of all the rows from 00:15 on day 1 to 00:00 on day 2 in the respective column (C), resulting in a value of **40.904 kW.**

   Just as with the registered consumption, it is necessary to convert these values to kWh. By multiplying 40.904 by 0.25, we obtain **10.226 kWh**, which is the value corresponding to the measured consumption at the consumption facility.

When subtracting the measured consumption at the consumption installation from the registered consumption, you get 11.171 – 10.226 = **0.945 kWh.**

This value represents the effect of the SQH on your consumption, i.e., it is offset by the amount injected into the grid.