

goal

This document describes the system requirements for hello energy to be operational in a building. The requirements relate to the full package of hello energy and concern the following aspects:

- TV screen & media player
- smart meters
- BMS
- sensors & gateways

a. TV screen(s) & media player(s)

In some projects hello energy sends feeds to a media player and / or TV screen. It is important that the installation and connection are prepared correctly. One 43" TV screen and one media player is standard.

Please contact hello energy in advance if:

- the TV screen(s) are already installed.
- you need more screens.
- you need different screen sizes.
- the screens need to be built in.

installation

The placement of the screen(s) and media player(s) is to be prepared in a location appointed by hello energy. The following requirements apply:

- The wall on which the screen is mounted should be strong enough to hold the 10 kg screen (no drywall).
- A double 230V socket behind the screen should be installed (out of sight).
- A dedicated fixed internet connection should be made available behind the screen (out of sight).

Unless mentioned otherwise, hello energy will install the TV screen(s) and media player(s).

connectivity

The following requirements apply:

- A dedicated, not shared, fixed internet connection with a speed of at least 50 Mbits/s.

b. smart meters

hello energy gets its main energy & sustainability data from smart meters in the building. Thus, to enable digital reading, all meters in the and around the building need to be smart and digital (no pulse). All generating systems (e.g. solar, wind) and charging stations (for electric transport) must have their own electricity meters. It is important these meters are equipped to send data with the right connectivity.

data (& connectivity)

For all smart meters the following requirements apply:

- All data supply is the responsibility of the metering company (for official main meters) or the installation company (for submeters). Both to be called "supplier".
- Availability: the data must be available at the latest the next day at 06:00 (local time).
- Interval time: the data must be available at a fixed interval of 15 or 60 minutes, depending on the type of energy data (see table below).
- UTC time: the data must be validated and provided with a time signature in UTC (00:00:00 (hh/mm/ss)).
- Time signature: explanation of whether the time relates to data from the period prior to or following the timestamp.
- Data format: value with 3 decimals.

- Cloud: the data must be available via an external cloud. A local PC/database will not be accepted.
- Data can be included in the hello energy platform in three ways:
 - Push: database link (API), by which the data is pushed to the hello energy database to an URL defined by hello energy.
 - Pull: datalink (API), in which the hello energy database retrieves the data from the database on a daily basis. This requires a secure login.
 - Email: a daily email is sent including a .csv file with data and legend (including meters and units) to an email address provided by hello energy.
- Data validation: the data is checked for validity. The supplier will indicate how this will be realized.
- Data labeling: to make sure data is recognized correctly, data need to be labelled with:
 - City, Building id , Source, location, unit. (Example: Tilburg DC5 Electricity, hal A, kWh -> "TBDC5 EL halA")
- Units and intervals:

source	abbreviation	unit	interval
electricity	EL	kWh	15 min.
gas	GA	m3	60 min.
water	WA	m3	15 min.
heat	HE	MJ	60 min.
cold	CO	MJ	60 min.
EV charging	EV	kWh	15 min.
PV	PV	kWh	15 min.
wind	WI	kWh	15 min.

- Storage: data needs to be stored for at least 12 months at database of supplier.
- Uptime and restore: the supplier guarantees a minimal uptime of 99%. If data supply is disrupted the supplier will inform hello energy immediately and ensure the connection is recovered in less than 48 hours. Data that could not be processed by hello energy due to the disruption will be made available/supplied as soon as possible.

c. BMS

In some buildings a Building Management System (BMS) is in place. As this is a place where data of the building is collected it makes sense that hello energy creates a direct connection to retrieve all relevant data. A data connection (API) between the BMS and the hello energy platform must be established. If you still need to decide on which BMS system to use, we advise using a cloud based system. Please contact us for more advice if needed.

data (& connectivity)

For the data connection from the BMS the following requirements apply:

- All data supply is the responsibility of the supplier.
- Availability: the data must be available at the latest the next day at 06:00 (local time).
- Interval time: the data must be available at a fixed interval of 15 or 60 minutes, depending on the type of energy data (see table below).
- UTC time: the data must be validated and provided with a time signature in UTC (00:00:00 (hh/mm/ss)).
- Time signature: explanation of whether the time relates to data from the period prior to or following the timestamp.
- Data format: value with 3 decimals.

- Cloud: the data must be available via an external cloud. A local PC/database will not be accepted.
- Data can be included in the hello energy platform in three ways:
 - Push: database link (API), by which the data is pushed to the hello energy database to an URL defined by hello energy.
 - Pull: datalink (API), in which the hello energy database retrieves the data from the database on a daily basis. This requires a secure login.
 - Email: a daily email is sent including a .csv file with data and legend (including meters and units) to an email address provided by hello energy.
- Data validation: the data is checked for validity. The supplier will indicate how this will be realized.
- Data labeling: to make sure data is recognized correctly, data need to be labelled with:
 - City, Building id , Source, location, unit. (Example: Tilburg DC5 Electricity, hal A, kWh -> "TBDC5 EL halA")
- Units and intervals:

source	abbreviation	unit	interval
electricity	EL	kWh	15 min.
gas	GA	m3	60 min.
water	WA	m3	15 min.
heat	HE	MJ	60 min.
cold	CO	MJ	60 min.
EV charging	EV	kWh	15 min.
PV	PV	kWh	15 min.
wind	WI	kWh	15 min.

- Storage: data needs to be stored for at least 12 months at the database of supplier.
- Uptime and restore: the supplier guarantees a minimal uptime of 99%. If a data supply is disrupted the supplier will inform hello energy immediately and ensure the connection is recovered in less than 48 hours. Data that could not be processed by hello energy due to the disruption will be made available/supplied as soon as possible.

To ensure the cloud based BMS can guarantee 99% uptime a dedicated, not shared, fixed internet connection with a speed of at least 20 Mbits/s is needed.

d. sensors & gateways

Another form of sending data of a building to hello energy is through IoT-sensors and gateways. hello energy needs to receive the floor plan in which all sensors and gateways are mentioned.

Please contact hello energy in advance if advice is needed on this subject.

installation

The following requirements apply:

- All sensors need to be installed according to a floor plan.
- Some sensors must come with an uninterrupted 230V connection. Uninterrupted connection means 24/7 power and should therefore be separated from the general power network. These sensors should be explicitly mentioned on the floor plan.
- If a gateway needs to be installed, it should be according to a floor plan and must come with an uninterrupted 230V connection.

data & connectivity

For all sensors and gateways the following requirements apply:

- Availability: the data must be available through LoRaWan. Data should be available in batches of 15 minutes. Occupancy data should be available in near real-time.
- Labeling: all data needs to be labelled in such a way that it is clear from which location the data will come and what unit it is measuring.
- UTC time: the data must be validated and provided with a time signature in UTC (00:00:00 (hh/mm/ss)).
- Time signature: explanation of whether the time relates to data from the period prior to or following the timestamp.
- Data format: data should be offered in following formats: string (max length 80), decimal (decimals precision 3), Boolean (true/false).
- Cloud: the data must be available via an external cloud. A local PC/database will not be accepted.
- Data validation: the data is checked for validity. The supplier will indicate how this will be realized.
- Storage: data needs to be stored for at least 12 months at database of supplier.
- Uptime and restore: the supplier guarantees a minimal uptime of 99%. If a data supply is disrupted the supplier will inform hello energy immediately and ensure the connection is recovered in less than 48 hours. Data that could not be processed by hello energy due to the disruption will be made available/supplied as soon as possible, unless this is not possible due to force majeure.

other

- The requirements only apply when the above aspects are applicable in a specific project.
- It is important that the supplier contacts hello energy in advance if these system requirements are part of a tender.
- If desired, the installer can contact hello energy to benefit from our expertise and partner network in this area.

contact details

hello energy

Kees van Alphen

T: +31 88 4367400

M: kees@hello-energy.com