

TIMEPAC

Academy

Session 2

Tips for efficient EPC data collection, validation and exploitation

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Key questions that will be addressed:

What to pay attention to during data collection and processing?

- Preparation activities
- Data origin

How can data collection be made an easier and less time-consuming process?

- Communication
- Templates

Preparation activities

One main connection contact.

Cloud data repository.

Site work!

Folder organization.

What do we need to collect?

- Design data
- Energy and water consumption bills
- Other consumption data
- Building drawings
- Envelope and technical system installed characteristics
- Working schedule and occupancy?

How?

Interviews with maintenance personnel, users, and management

Walk Through Audit

Photo documentation

Desk work!

Preparation activities – The Scope

Collect and process data about the building's performance.

Energy and water consumption data.

- building envelope characteristics in terms of thermal protection and energy consumption
- energy performance of heating, cooling, ventilation, and air conditioning systems
- energy performance of the system for the preparation of hot water consumption
- energy performance of the electricity consumption system
- energy performance of drinking and sanitary water consumption systems
- energy performance of individual groups of consumers and other technical systems present,
- tools for energy monitoring and management

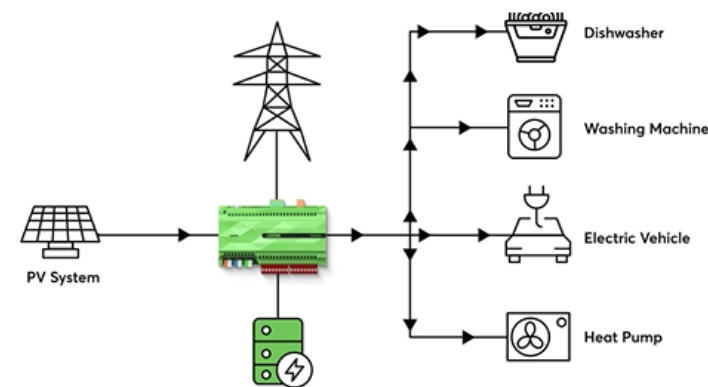
Preparation activities – The Scope

Collect and process data about the building's performance.

Energy and water consumption data.

Technical characteristics (U (W/m²K) for envelope elements, the nominal power of installed elements, efficiency, type, year, and model...)

Operating schedules (measurement consumption control, modeled or measured)
System condition (quality of maintenance, on-site condition control)

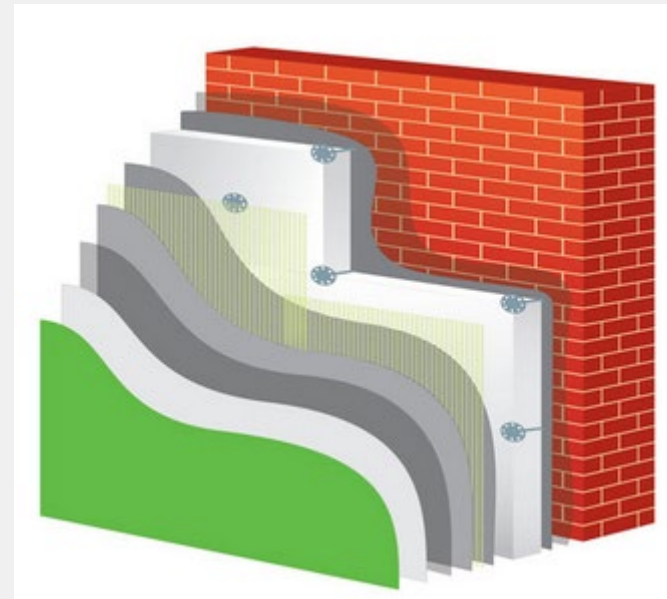


Automatization and operational system unit!

The example of processed input data

Building envelope characteristics in terms of thermal protection and energy consumption

The outer envelope of the building consists of all construction elements of the heated space of the building that borders the external air, unheated spaces, and soil.



Heating and cooling $Q_{H,nd}$ [kWh/y.] and $Q_{C,nd}$ [kWh/y.]

The example of processed input data

Energy performance of heating, cooling, ventilation, and air conditioning systems.

Each central thermomechanical system consists of the following main subsystems:

- Source (source of thermal energy, source of cooling energy, air handling unit)
- Distribution (pipe distribution, channel distribution for air)
- Heat exchange in space (heating elements, fan coil, radiator, air grille...)

Maintenance evidence book!

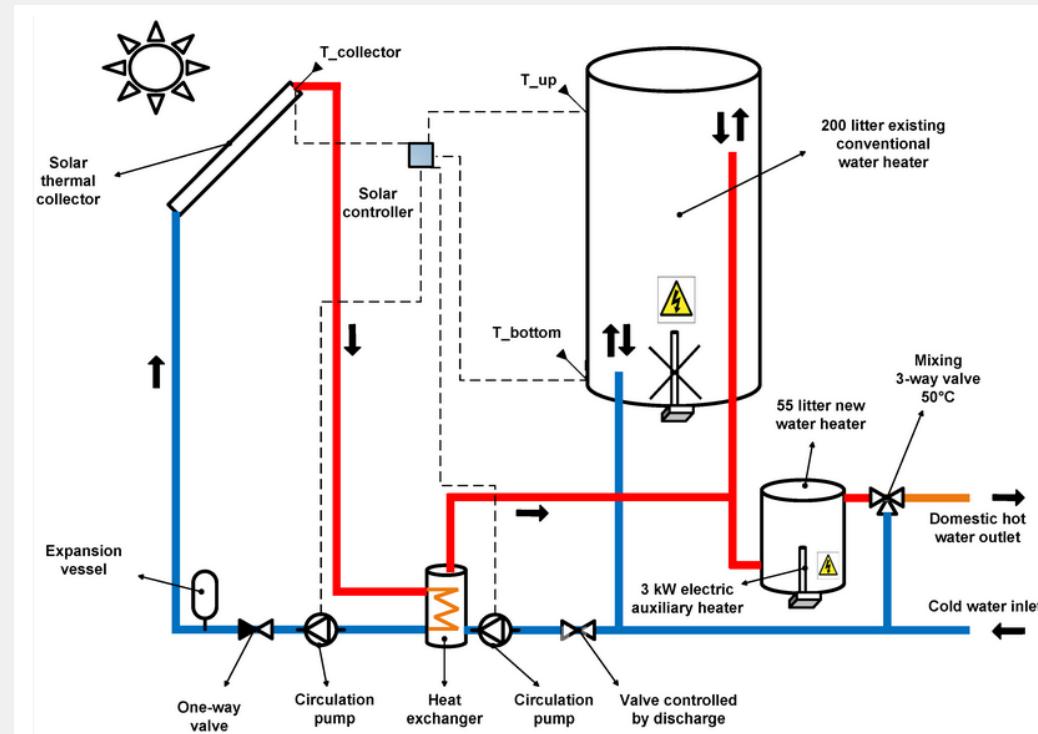
Central and local control!

Data on the actual mode of operation schedule of the HVAC systems

The example of processed input data

Energy performance of the system for the preparation of hot water consumption

Insulation, working schedule, pumps, control valve...

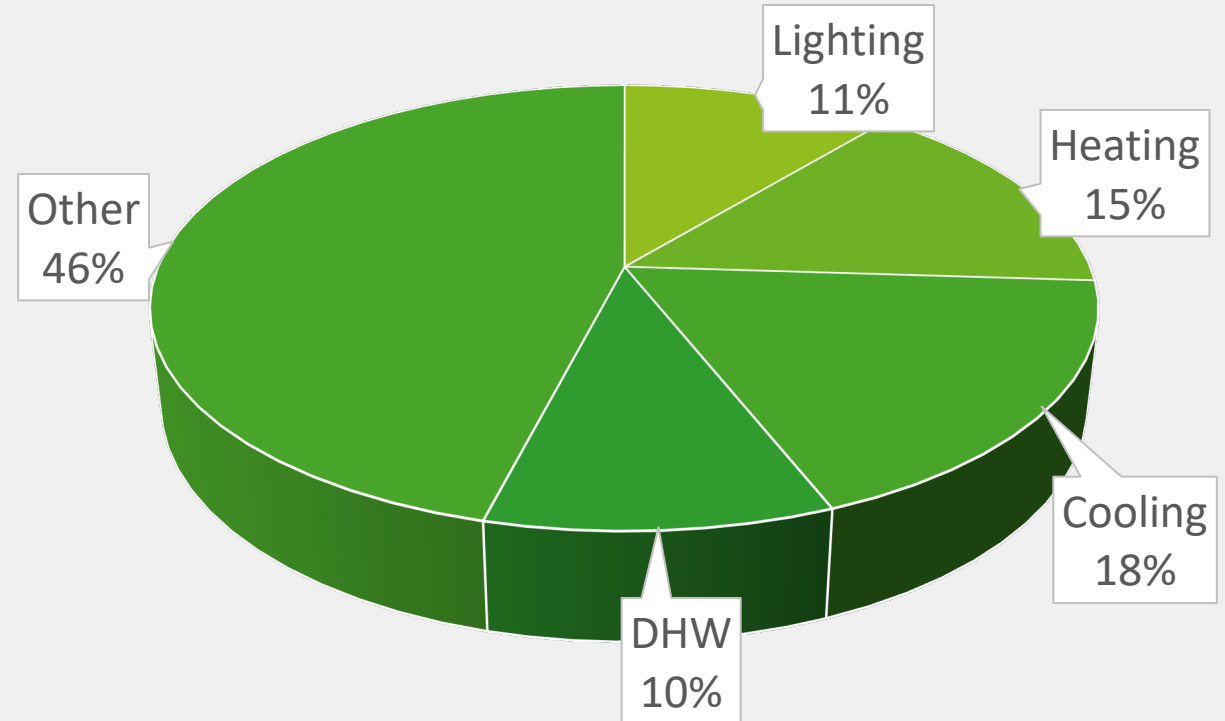


Dedicated return line!
Water temperature!

The example of processed input data

Energy performance of the electricity consumption system

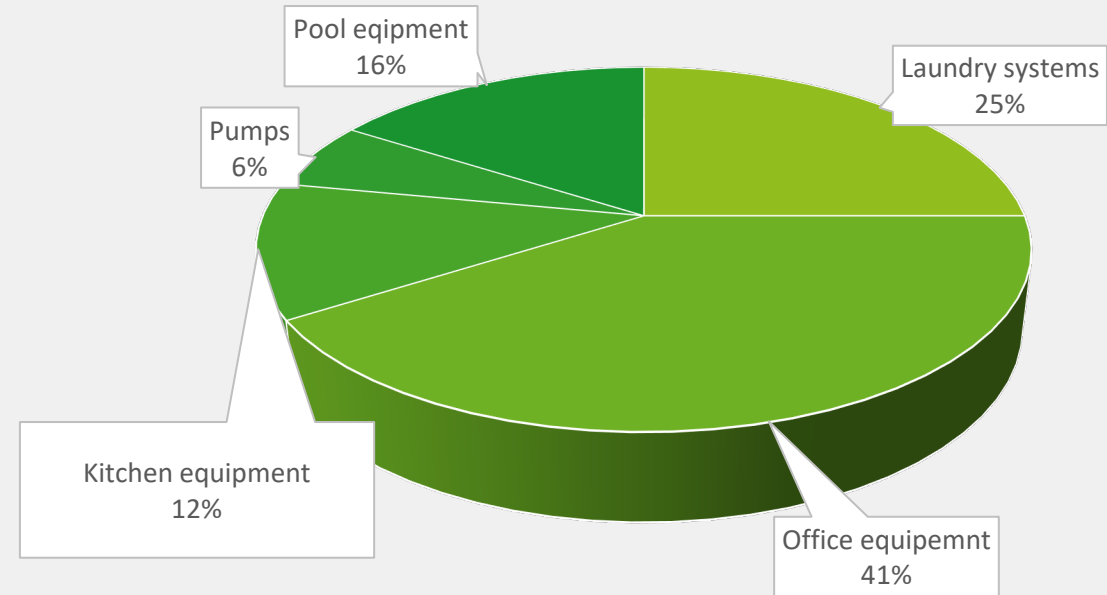
Electricity consumption systems are defined as groups of typical consumers (lighting, HVAC, laundry systems, office and kitchen equipment, pumps, and vents...)



The example of processed input data

Energy performance of individual groups of consumers and other technical systems present.

Tools for energy monitoring and management



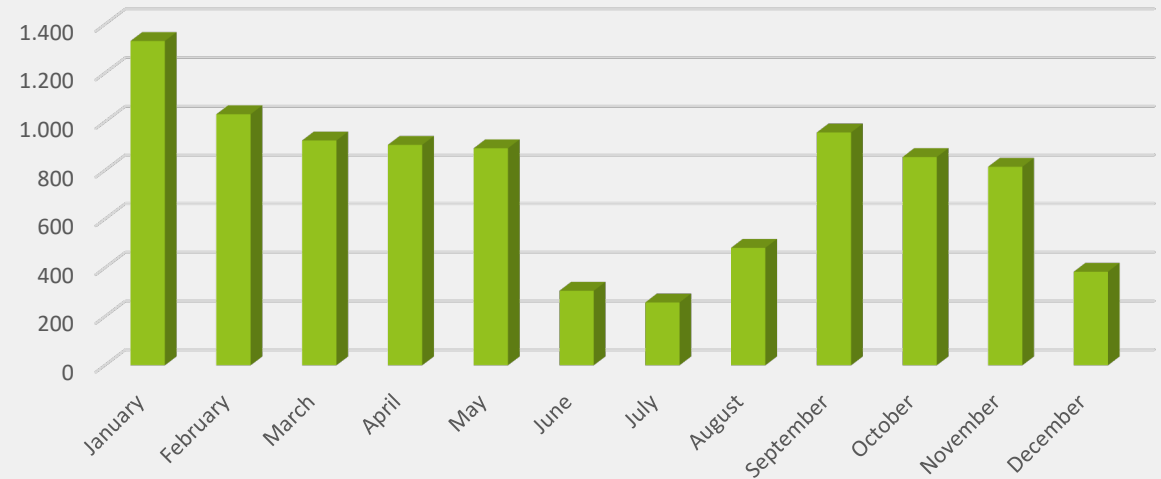
Modeling is according to the current conditions of the installed equipment, working schedule, and nominated power values and efficiency.

Monitor consumption according to hourly, daily, and monthly values. Set control measurement units! Photo documentation! Monitor set values of temperatures for heating, cooling, DHW, illumination...

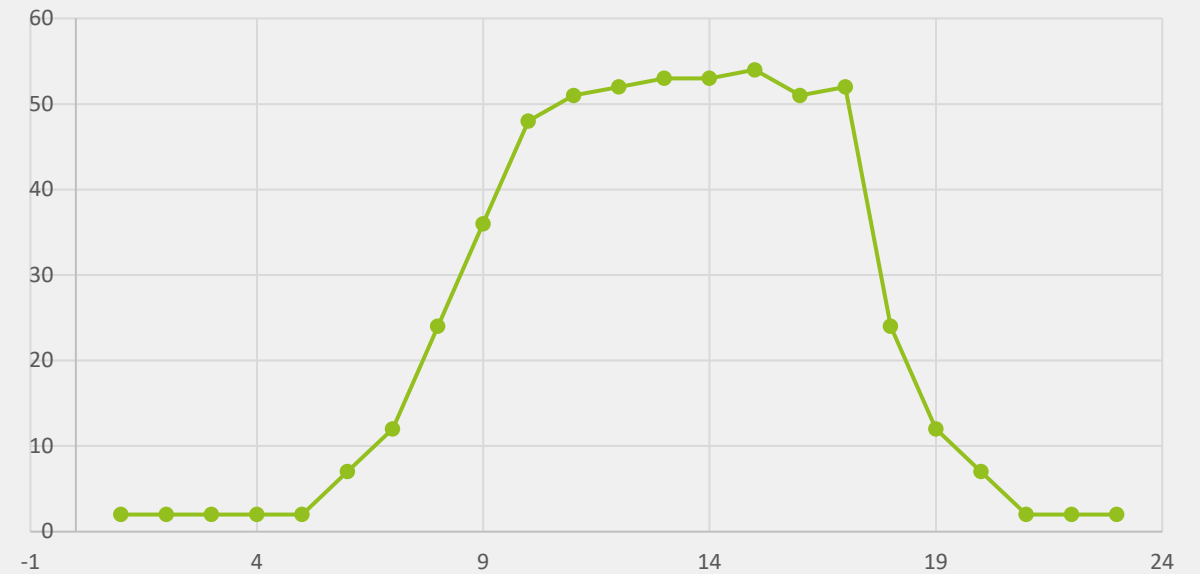
The example of processed input data

Energy performance of drinking and sanitary water consumption systems

Water consumption (m3)



m3/h



Modelling energy and water consumption

Bills vs modeling values

Identify losses and define adequate measures!

Identify all energy consumption sources on site!

Collect energy bills for three previous consecutive calendar years (last full three years) and define the referent year (last year?)

The last bill of energy and water consumption.

Calculate (according to real consumption data) and model the energy and water consumption of each system (according to technical characteristics, schedule, and condition), and then compare them to identify inconsistency and efficiency measures!

Consumption indicators!

Conclusion

Tips in short.

Organize your tools
(templates for getting
input data, folder
organization, pre-visit
input data...)

On site work! Interviews,
photo documentation,
maintenance records...)

Efficiency measures are
the conclusion of an
energy audit!

The goal of applying these measures is to save energy and/or water while maintaining or improving comfort, service quality, or product quality. The result of the measures is savings in consumption of energy and/or water, costs for energy and/or water, and reduction of greenhouse gas emissions.

**If you would like more information,
please visit www.timepac.eu or contact us at
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Thanks for your attention!