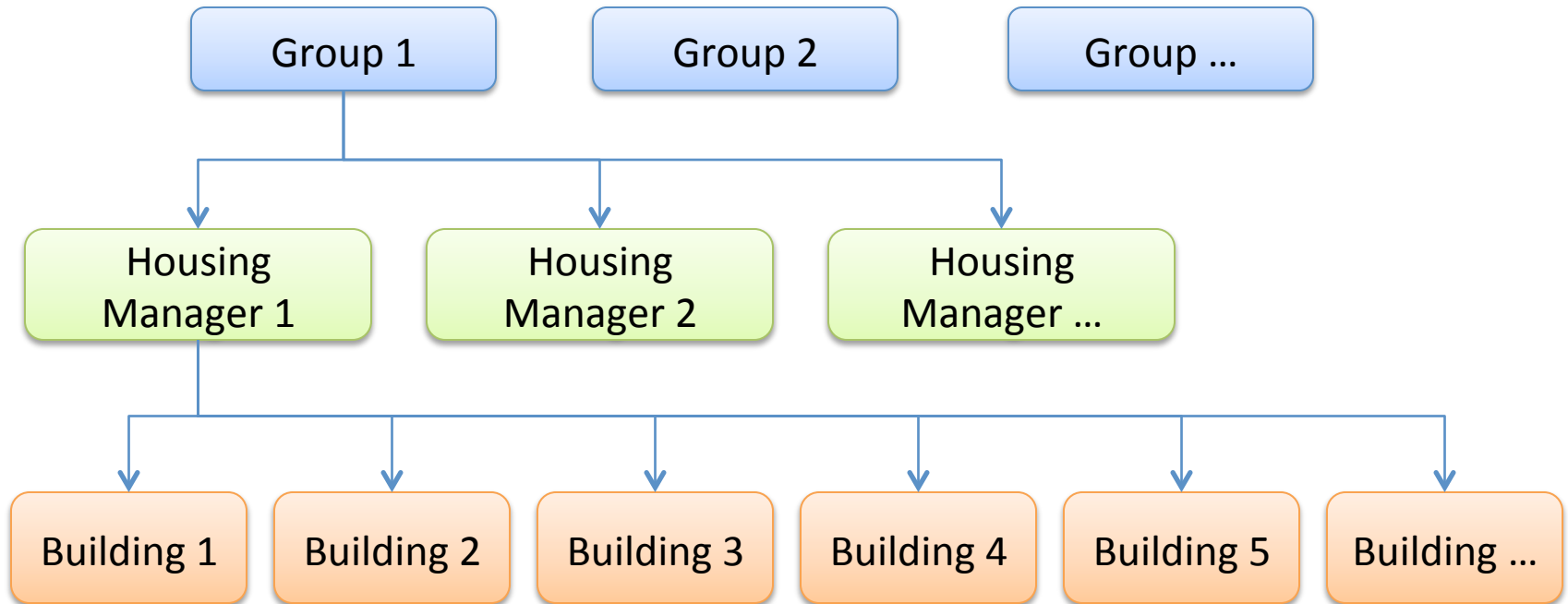# POWER HOUSE nZEC Project
Wiesbaden workshop
4-12-2013

Monitoring: Presentation of the Consumption data On-line Tracker
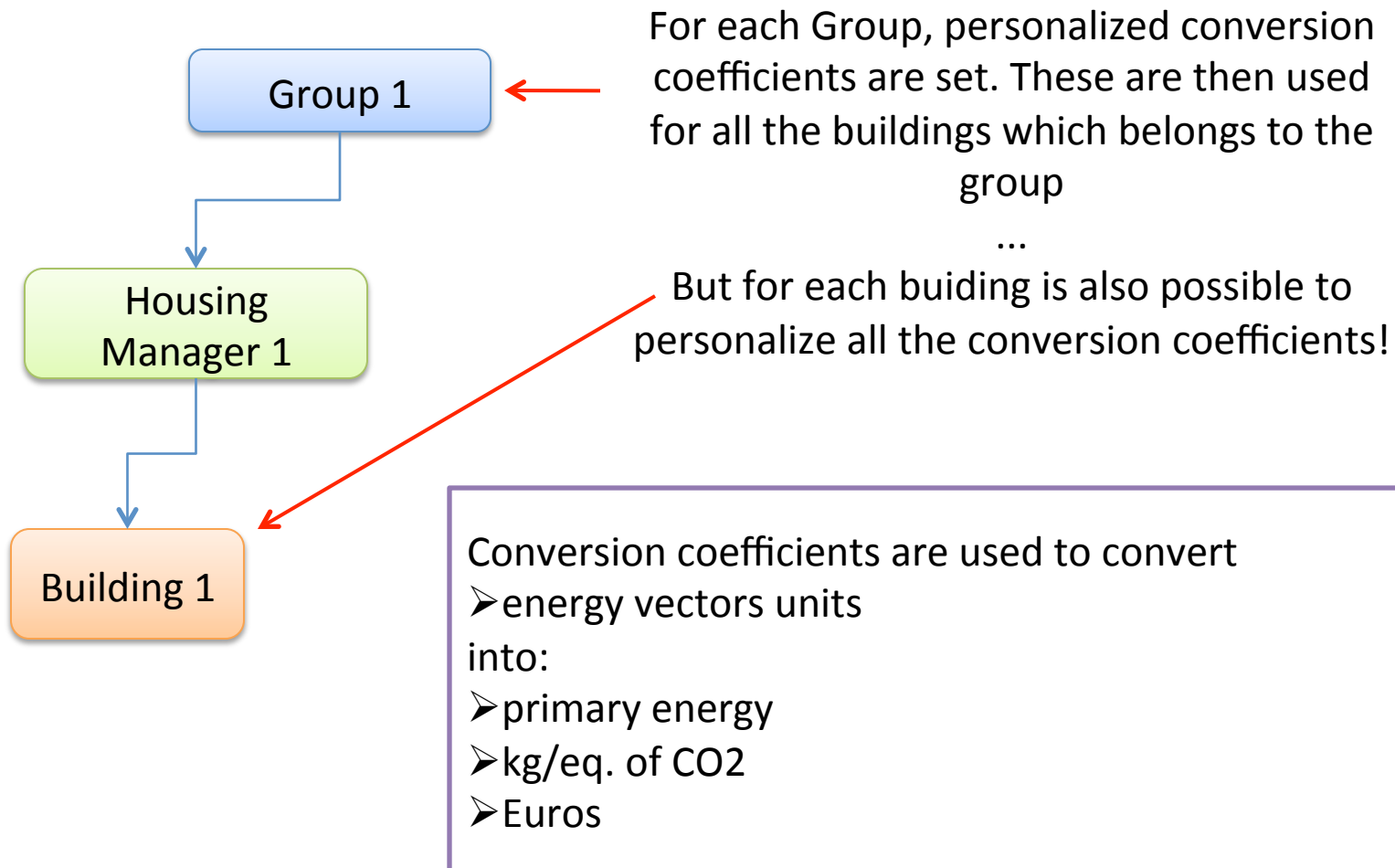
We use the Hive web database:
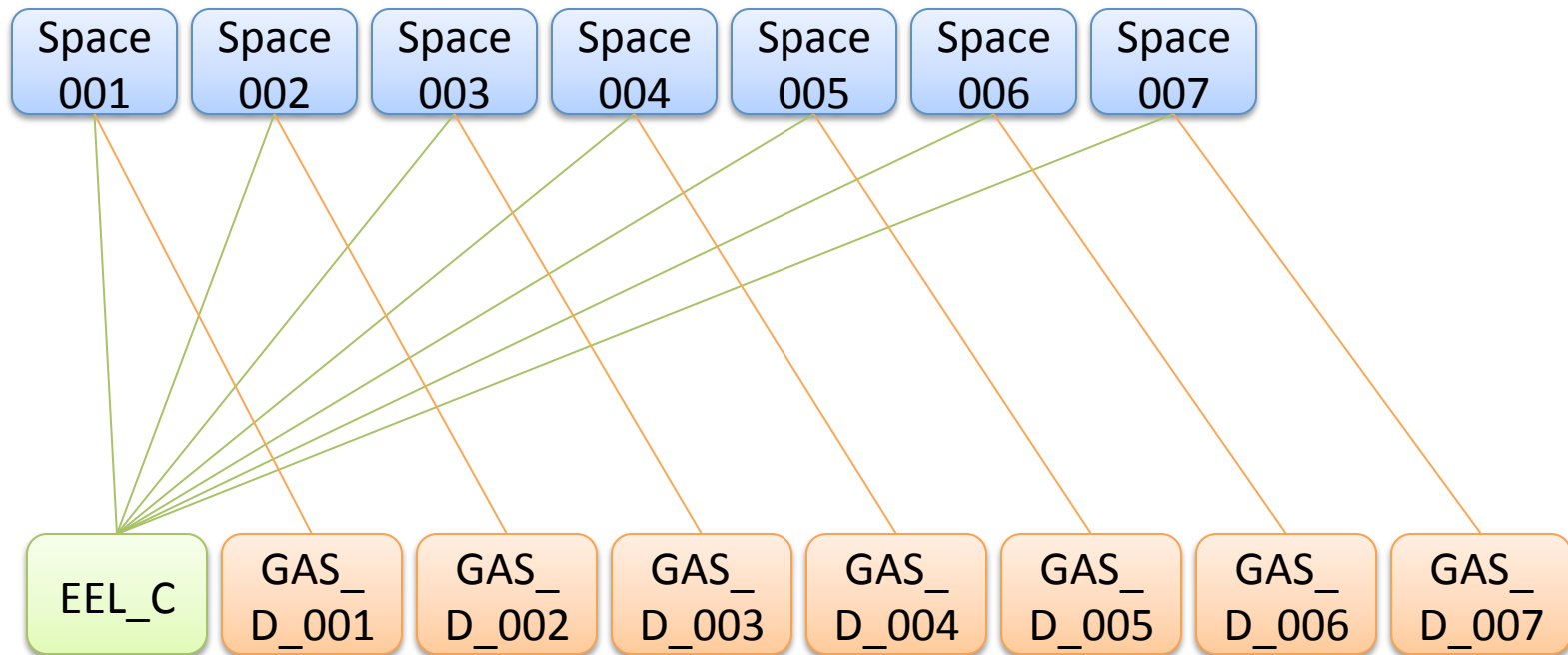
http://panel.hiveproject.net

Database entities

```
┌──────────┐    ┌──────────┐    ┌──────────┐
│ Group 1  │    │ Group 2  │    │ Group …  │
└──────────┘    └──────────┘    └──────────┘
```

Group 1 → Housing Manager 1, Housing Manager 2, Housing Manager …

Housing Manager 1 → Building 1, Building 2, Building 3, Building 4, Building 5, Building …

Group 1	Group 2	Group …

Housing Manager 1	Housing Manager 2	Housing Manager …

Building 1	Building 2	Building 3	Building 4	Building 5	Building …

Conversion coefficients

Group 1

Housing Manager 1

Building 1

For each Group, personalized conversion coefficients are set. These are then used for all the buildings which belongs to the group

...

But for each buiding is also possible to personalize all the conversion coefficients!

Conversion coefficients are used to convert
➢ energy vectors units
into:
➢ primary energy
➢ kg/eq. of CO_2
➢ Euros

Building elements

Building elements

Heated spaces: net area, gross area. If only one is given, the system calculate the other according to equation: net area = 80% gross area

| Space 001 | Space 002 | Space 003 | Space 004 | Space 005 | Space 006 | Space 007 |

Links!!

| EEL_C | GAS_D_001 | GAS_D_002 | GAS_D_003 | GAS_D_004 | GAS_D_005 | GAS_D_006 | GAS_D_007 |

Consumption meters
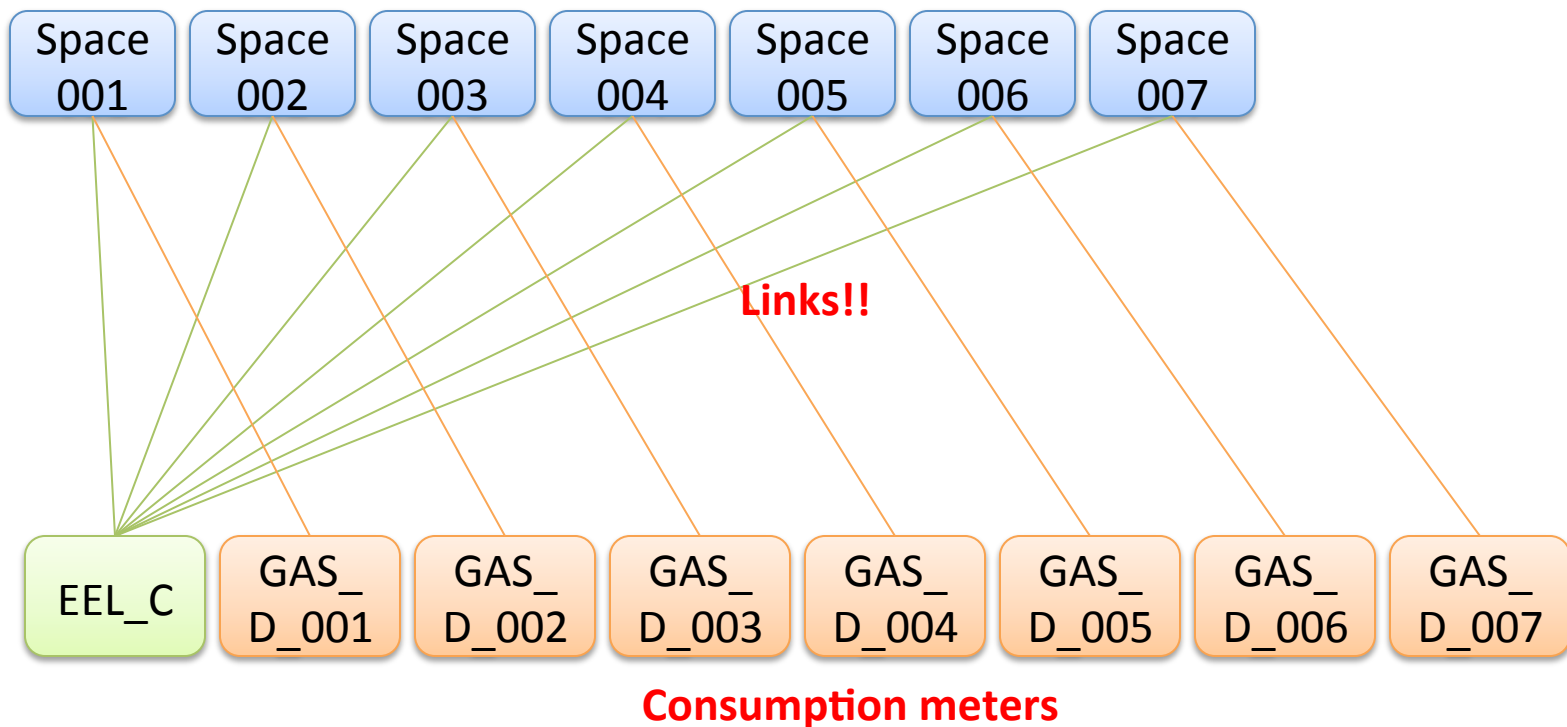
Consumption meters

Consumption meters have different properties:

- Energy vector: natural gas, electricity, district heating...
- Usage:
  - Space heating
  - Water heating
  - Space cooling
  - Technical services
- Shared/ direct
- Real/ formula
- ...

Examples
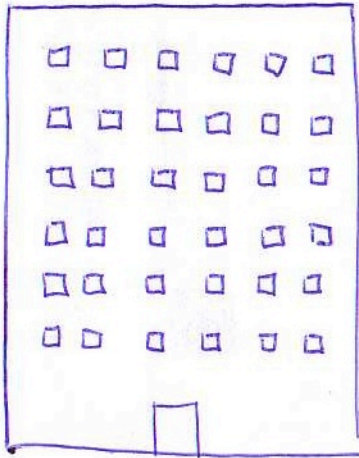
EASY!

One building with many dwellings, all residential
1 heated space
1 shared meter – district heating – space and water heating
1 shared meter – electricity – technical services including ventilation
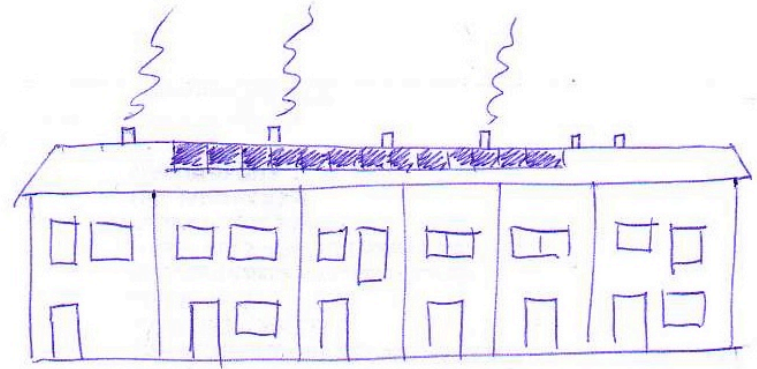
Examples

MORE COMPLEX...

One complex of 8 buildings, each with 5 to 10 living unit (60 in total)
60 heated space
60 direct meter – natural gas – space and water heating
8 shared meter – electricity – technical services, no ventilation
8 shared meters – electricity – PV energy feeded into the grid

Examples
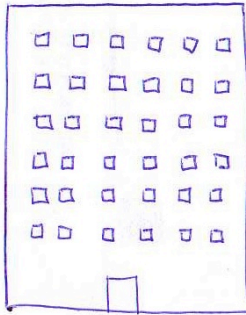
EASY!

...OR ...

MORE COMPLEX....

In both cases, although the input data are very different, the system generates for the unregistered users the same type of energy balance, with only total values for the entire building/ complex!

Input data

Frequency. There 2 possiblities:

- Once per year (over the turn of the year)
- Twice per year (April and October)

Data format. Each enrgy vercor has its own unit: electricity kWh_e, district heating kWh_t, natural gas Nm^3...

Input data

Data format. The system asks for the value of the meter at a certain date. So date of the reading and value will be entered in the systems.

In case period data are available, this can be used as well. For best accurancy, provide always starting and ending date of each period.

Example

Date   **Meter value**

30/12/2011   326985

2/1/2013   345689   **Best!!**

Period   **Period value**

2012   18704   **Ok**

Period   **Period**   **Period value**
start date   **end date**

30/12/2011   2/1/2013   18704   **Better**

Other required input data

- Degree of occupancy (optional), for each heated space, between 0 and 100% with intervals of 5%

Demonstration

Now let's have a look to the website:

http://panel.hiveproject.net