E3SO Final European Workshop
Brussels, 18th September 2013

eSESH
Saving Energy in Social Housing with ICT
March 2010 – February 2013

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Project partially funded under the ICT Policy Support Programme (ICT PSP)
as part of the competitiveness and Innovation Framework Programme by the European Community

eSESH in brief

Services: Web-based energy efficiency services

- EMS Energy Management Services
- EAS Energy Use Awarness Services

Domain: Social Housing (~ 3.500 dwellings)

Duration: 36 months (3/2010 – 2/2013)

Partner: 29 partner in 8 Countries

Pilots: 10 Pilots in 6 Countries

Project budget: 5.90 Moi. €

Coordinator: Empirica, Bonn

eSESH objectives

The objective of the project is to design, develop and pilot new solutions to enable sustained reductions in energy consumption across European social housing

This has been accomplished by providing:

- Usable ICT-based services for Energy Management (EMS) and Energy Awareness (EAS) directly to tenants
- Effective ICT monitoring and control of local generation of power and heat
- Social housing providers, regional and national government with the data they need to optimise their energy-related policy and investment decisions at national, regional and organisational level

eSESH consortium

The consortium, led by government authorities and social housing providers, includes global players in electricity supply, smart metering and home / building automation and international players in building networks and tenant portals, working with local consultants and specialists to carry out all steps in the project service implementation process.

Services delivered to tenants

In operational terms the consortium has carried out intensive work on optimising services for tenants

- Service requirements have been investigated with tenants and staff and service prototypes based on initial use cases have been subject to user testing within the first year of the project
- Results have been used to finalise service design in a second iteration of use case definition and service specification lasting some 8 months, cumulating in implementation of operational services at all the pilot sites
- It was planned that pilots at all sites would operate for at least 14 months
- Each pilot site developed and implemented own services, which turned out being quite different from each other

Service example: Linz

Service type: EAS + EMS

Energy vector and usages: electricity for home usages and thermal energy for heating.

Short description: Measurement data is provided to the customer directly by using IP-based communication. This allows tenants not only to check the consumption values in real time but they also can configure some switching and control equipment to react (switch) if a specific tariff is available or if a threshold has been defined and/or if a certain power consumption is exceeded.

Key pilot partner: Multiutility company and metering equipment manufacturer

Service example: Linz

Service example: Frankfurt

Service type: EAS

Energy vector and usages: Thermal energy for space heating and hot water for domestic use.

Short description: Web portal to check and control heating and warm water consumption. It contains hints and tips for energy saving and is available in German and Turkish for better understanding for non-German speaking tenants.

Key pilot partner: Large metering equipment manufacturer

Service example: Frankfurt

Service example: Northern Italy

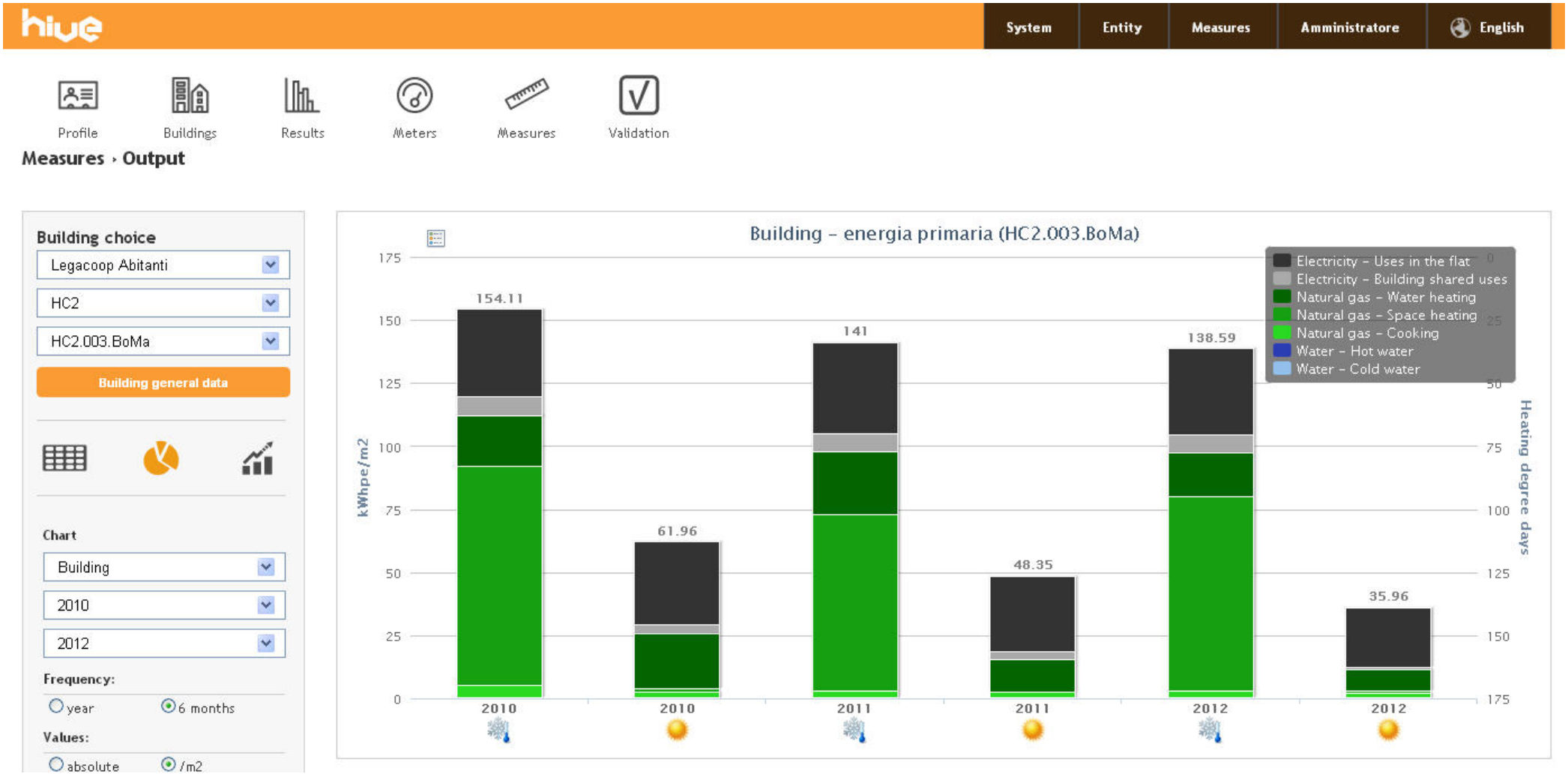
Service type: EAS

Energy vector and usages: Virtually all supplies and usages of the building

Short description: A web application to account for energy and water consumption in the buildings has been implemented. For each flat and building, in the database, it is possible to know the seasonal consumption of energy (electricity, gas, district heating and other) and water. All energy types provided to a building are monitored in order to have a complete view and not only partial for a specific energy type.

Key pilot partner: Cooperative housing provider and software house

Service example: Northern Italy



Service example: Solingen

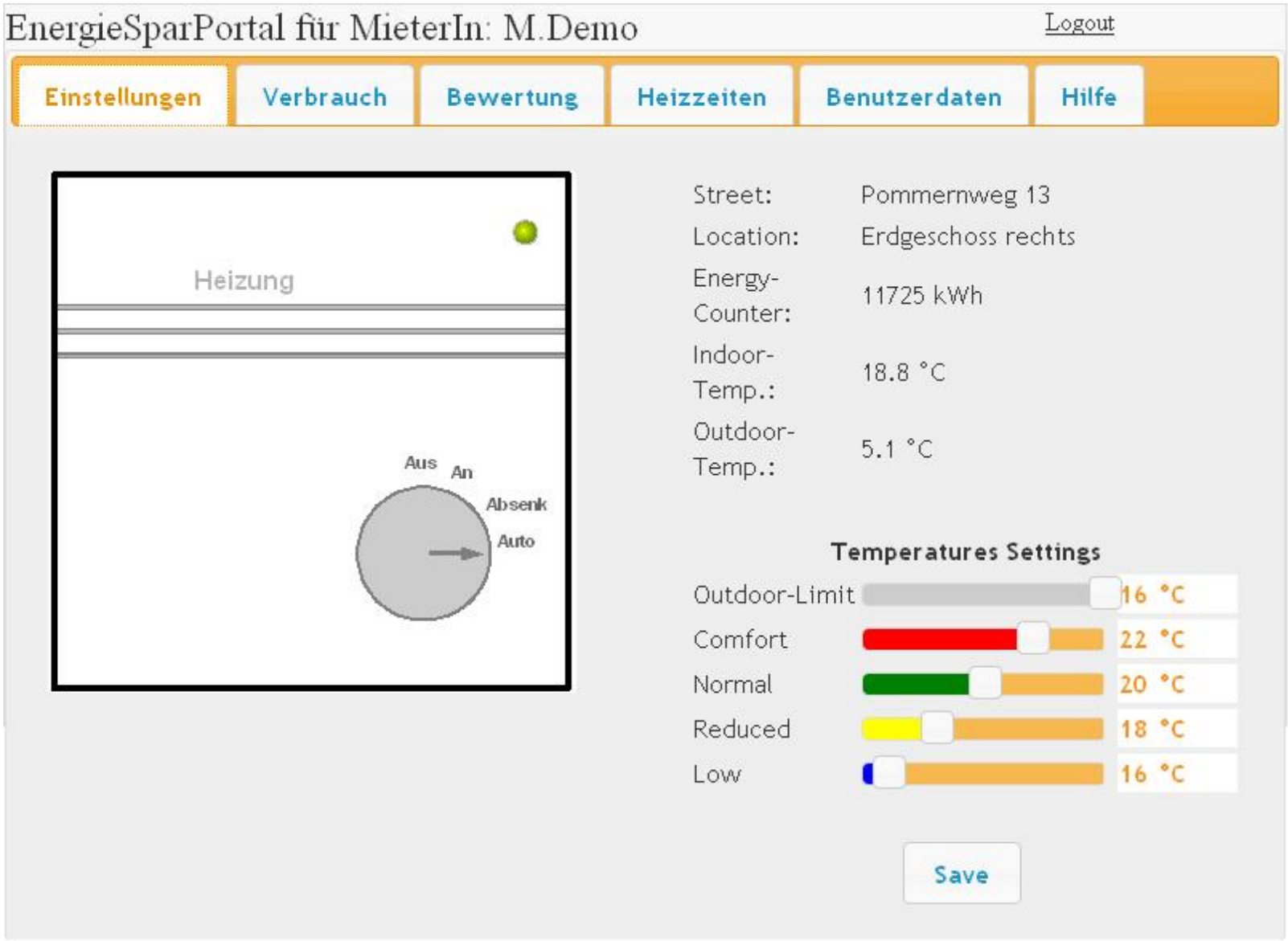
Service type: EMS

Energy vector and usages: Thermal energy for space heating

Short description: The core part of the service is a central motor valve which interrupts the heating supply of the dwelling completely if it is closed. This motor valve is connected to a controller which closes the motor valve automatically, if the desired indoor temperature is reached

Key pilot partner: Engineering firm

Service example: Solingen



Interoperability

- The project didn't include a testing activity of interoperability of different systems
- The user interface (web portal) is generally specific to the data acquisition equipment (metering infrastructure) adopted
- Some exception: Northern Italy pilot has developed a "low technological" solution, with manual acquisition of consumption data, in order to be able to gather all consumption data regardless of the metering infrastructure in place
- In some pilots it has been necessary to install a second metering infrastructure on top of the existing one, in order to gather the data into the user interface
- Limits to interoperability are both technical and non technical (data owner doesn't want to give access to data)

Results: achieved savings

Energy savings have been measured in two ways:

- comparing consumption in each dwelling before and after the operation of eSESH services
- comparing consumption in dwellings where the eSESH services where provided, with consumption in buildings where eSESH services where NOT provided (control group)

Change of tenure, size of the dwellings, degree days have been all considered in order to assess the energy savings

Global savings achieved is 9 %

We believe that even better energy savings could be achieved after a longer usage period of the service

Results: achieved number of EAS users

- 2.666 tenant households ~ 5.865 individuals are potential EAS users. That means that they have been equipped with the eSESH service and could make use of it
- Compared to the work plan, the target of 5.512 tenants provided with EAS has been over achieved
- One third of the total number of potential users became actual users of the EAS tenant web portal. That information has been gathered from the portal log-in file at all pilot sites
- When considering also tenants who registered to the portal but did not start to use and/or those who received postal information and/or were involved in energy coaching the percentage of interested tenants is significantly higher (40%)

Conclusions

- The eSESH solution can be applied in all circumstances
- EMS / EAS help to maintain infrastructure while reducing resource consumption
- EMS to collect low-hanging fruit quickly – EAS for long-term strategies and benefits
- If tenants don't pay energy bills themselves, eSESH helps save energy by allowing to monitor and regulate actual room temperatures in dwellings
- Digital services need to be promoted offline: Advice given by trusted intermediaries is crucial for widespread success
- eSESH solution is viable with return on invest achievable within a few years
- Successful incentivisation of all key stakeholders is a major criterion for success
- European standards for exchange of metering data are required

Thank you for your attention!

http://www.esesh.eu/

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