

# 3E-HOUSES Project



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## AGENDA

- PROJECT OVERVIEW
- CONSORTIUM / ROLES
- RESULTS OF PILOTS
- RESULTS OF REPLICATORS
- TOTAL FIGURES
- CONCLUSIONS





# 1. Project overview

- Under CIP-ICT-PSP-2009.4.1: ICT for energy efficiency in social housing.
- Project length: 3 years and 4 months. Started on 1st February 2010 and ended on May 2013.
- Overall Budget: 3.998.785 € of which, a maximum of 1.999.391 € shall be granted by EC.
- 3e-HOUSES deals with the integration of the most established ICT technologies in social housing in order to provide an innovative service for energy efficiency:
  - real time monitoring and management of the energy consumption;
  - integration of renewable energies;
  - creating the resources to lower energy consumption.



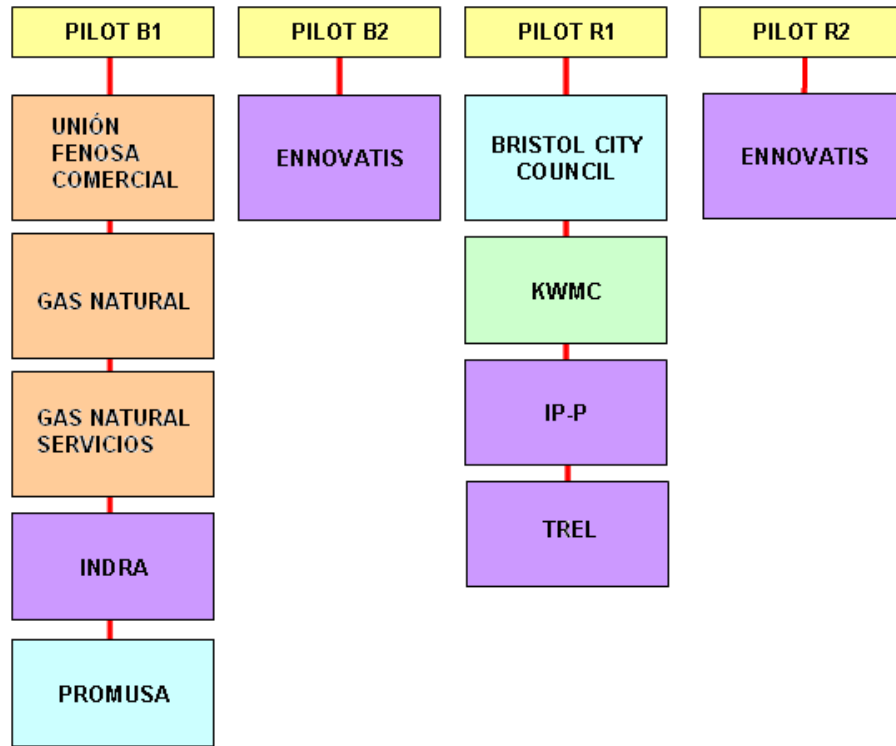


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## 2. Consortium roles



### CONSORTIUM

- **11 partners** from 4 different countries.
- Including **4 different roles** to cover all the actors represented in the project: **Public administration, utilities, housing associations** and **ICT focused companies**.



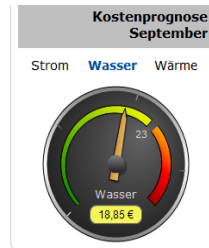
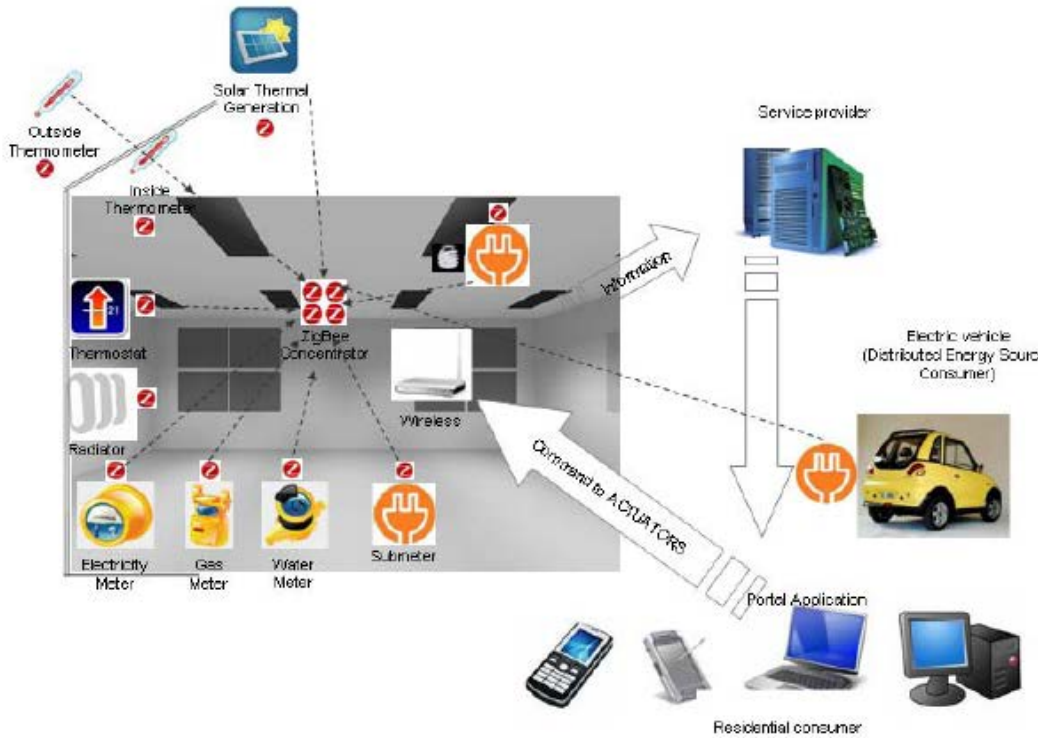


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# 3. Results of pilots. DESIGN: HW and SW.



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Wärmeverbrauch

Wasserverbrauch

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Benchmark

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**Energiespartipp**

Legen Sie mal wieder selbst Hand an!

Eine Benutzung der Geschirrspülmaschine lohnt sich erst ab vier Personen

3 - E HOUSES

gasNatural fenosa, ennovatis, indra, Knowle West Media Centre, trl, performance

Herzlich Willkommen im Mieterportal des 3e-Houses Forschungsprojektes!

<p>33,75 €</p> <p><b>Stromkosten</b></p> <p>Laufender Monat Kosten (€) 26,62</p> <p>Laufendes Jahr Kosten (€) 268,99</p>	<p>48,7 €</p> <p><b>Kosten für Heizung und Warmwassererwärmung</b></p> <p>Laufender Monat Kosten (€) 6,55</p> <p>Laufendes Jahr Kosten (€) 328,35</p>	<p>23,42 €</p> <p><b>Kosten für Kaltwasser</b></p> <p>Laufender Monat Kosten (€) 13,82</p> <p>Laufendes Jahr Kosten (€) 186,49</p>
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### 3. Results of pilots. ENERGY SAVINGS

#### SPANISH PILOT

Whole project (3 buildings + dwellings)	Total adjusted Baseline [kWh]	Total Consumption [kWh]	Total savings [kWh]	Total savings [%]
Heating Consumption [kWh]	646.025,82	525.258,58	120.767,23	18,7%
Domestic Hot Water Consumption [kWh]	112.755,86	89.902,23	22.853,63	20,27%
Electricity Consumption [kWh]	234.762,82	165.031,19	70.181,63	29,89%
<b>Total energy consumption [kWh]</b>	<b>993.544,50</b>	<b>780.192,01</b>	<b>213.802,49</b>	<b>21,52%</b>
Cold water consumption [l]	2.075.627,48	1.732.568,36	343.059,12	16,53%

#### GERMAN PILOT

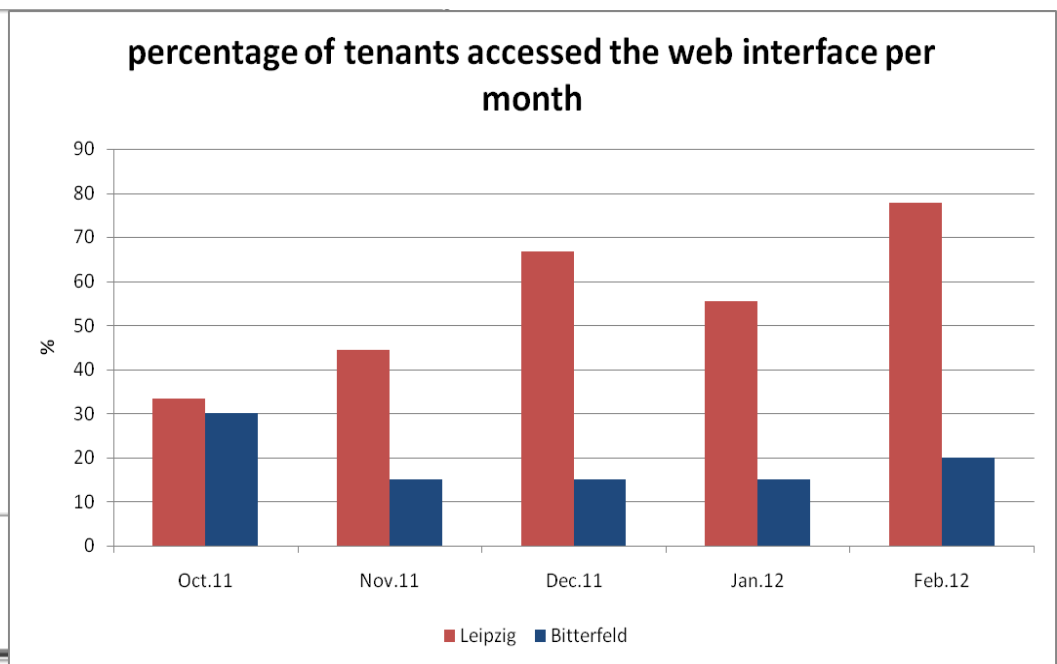
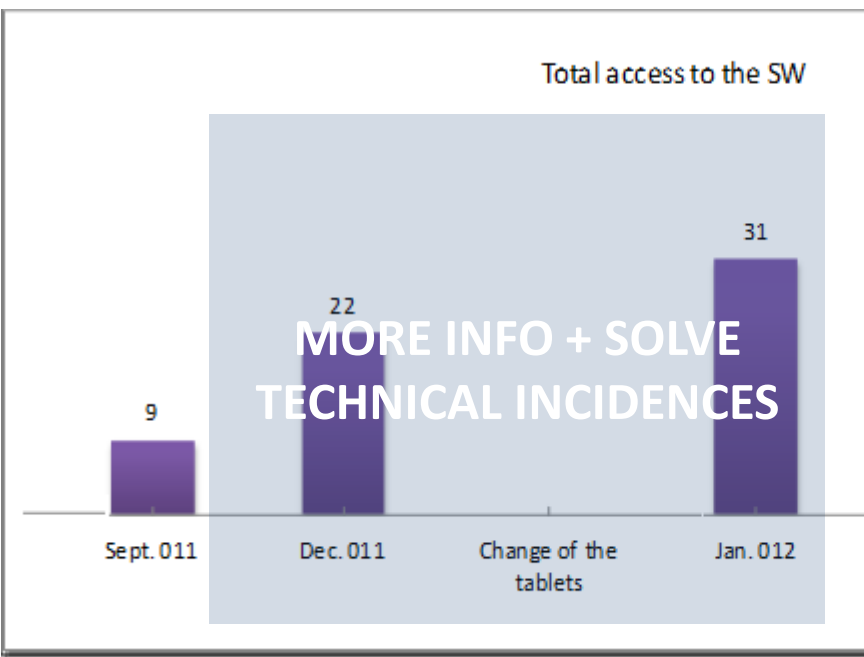
Whole project (3 buildings + dwellings) in Germany	Total adjusted Baseline	Total Consumption	Total savings	Total savings [%]
Heating Consumption [kWh]	777.001,85	787.140,35	-10.138,50	-1,3%
Domestic Hot Water Consumption [kWh]	24.557,72	27.814,91	-3.257,19	-13,26%
Electricity Consumption [kWh]	77.332,42	79.890,03	-2.557,61	-3,31%
<b>Total energy consumption [kWh]</b>	<b>878.891,99</b>	<b>894.845,29</b>	<b>-15.953,30</b>	<b>-1,82%</b>
Cold water consumption [l]	3.936.400,00	5.610.088,36	401.939,12	10,21%



### 3. Results of pilots. INTEREST IN PILOTS

#### SPANISH PILOT

#### GERMAN PILOT



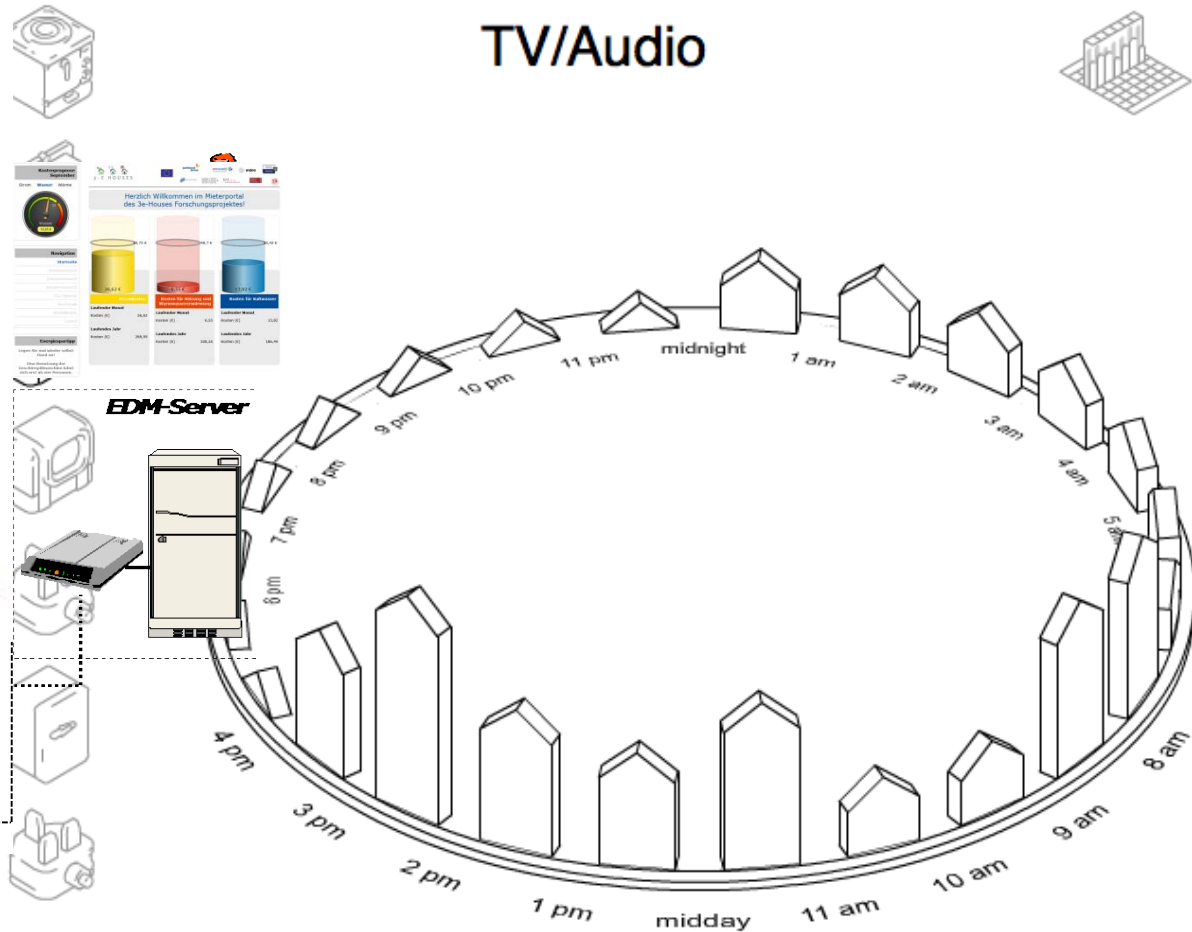


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# 4. Results of replicators. DESIGN: HW and SW



## 4. Results of replicators. ENERGY SAVINGS

UK

Population	Type (sample size)	Total Measured (MWh)	Total	Savings (MWh)	Percentage Savings
Knowle West	Electricity (32)	128	135	6,7	4,9
	Gas (8)	107	147	39,7	23,8
	Total	235	282	46,4	28,7
	CO <sub>2</sub>	87,2	98,3	11,1	11,3
Dove Street	Off peak	80,3	81,9	1,64	1,8
	On Peak (28)	31,9	34,3	2,35	7
	Total	112	116	3,99	3,4
	CO <sub>2</sub>	5,79	6	0,21	3,4
<b>Total</b>	<b>Total</b>	<b>347</b>	<b>398</b>	<b>50</b>	<b>12,6</b>
Bristol Replicator	CO <sub>2</sub>	93,04	104	11,1	10,7

GERMAN

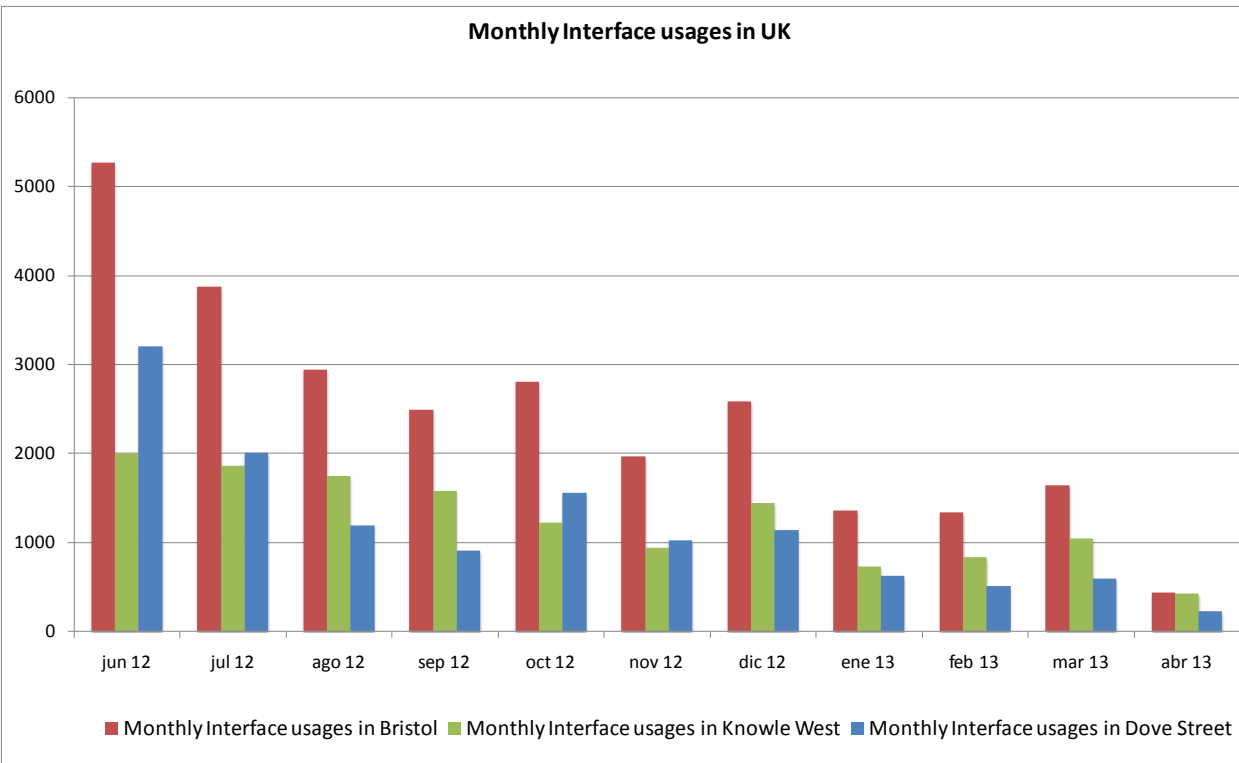
dwelling - Langenfeld	Total adjusted Baseline	Total Consumption	Total savings	Total savings [%]
Heating [kWh]	94.692,50	81.824,79	12.867,71	13,59
Electricity [kWh]	42.511,77	39.815,60	2.696,16	6,34
cold water [m <sup>3</sup> ]	996,00	923,60	72,40	7,27
<b>Total energy [kWh]</b>	<b>137.204,27</b>	<b>121.640,40</b>	<b>15.563,88</b>	<b>11,34</b>
<b>Total CO<sub>2</sub> [kg]</b>	<b>28.894,44</b>	<b>26.996,16</b>	<b>1.898,28</b>	<b>6,57</b>



## 4. Results of replicators. INTEREST IN PILOTS

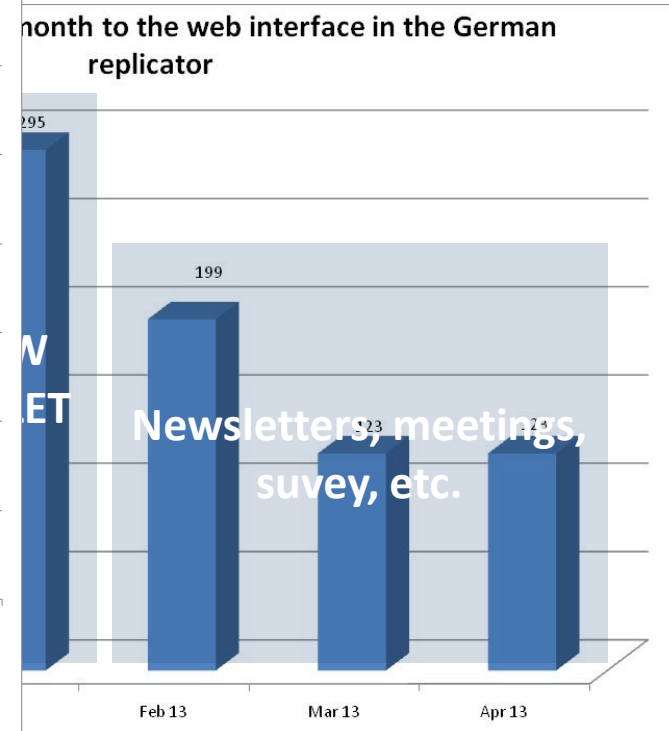
UK

Monthly Interface usages in UK



GERMAN

month to the web interface in the German replicator





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## 4. Results PILOTS + REPLICATORS

TYPE OF CONSUMPTION		TOTAL CONSUMP. (kWh)	BASELINE (kWh)	SAVINGS (kWh)	% SAVINGS
ELECTRICITY	SPANISH	165031	234763	69732	29,70%
	GERMAN 1	79890	77332	-2558	-3,31%
	UK	240200	251200	11000	4,38%
	GERMAN 2	39.816	42.512	2.696	6,34%
HEATING	SPANISH	525259	646026	120767	18,69%
	GERMAN 1	787140	777002	-10138	-1,30%
	UK*	107000	147000	40000	27,21%
	GERMAN 2	81.825	94.693	12.868	13,59%
DHW	SPANISH	89902	112756	22854	20,27%
	GERMAN 1	27815	24558	-3257	-13,26%
	UK	-	-	-	-
	GERMAN 2	-	-	-	-
COLD WATER (l)	SPANISH	1732568	2075627	343059	16,53%
	GERMAN 1	5610089	3936400	-1673689	-42,52%
	UK	-	-	-	-
	GERMAN 2	923,60	996,00	72,39692	7,27%
<b>TOTAL ENERGY SAVINGS</b>		<b>2143877</b>	<b>2407841</b>	<b>263964</b>	<b>12,31%</b>
* in UK we consider only the gas consumption					





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## 5. Conclusions

High energy savings can be achieved (12,31% in total)

ICTs can play a significant role in reducing energy use through controlling consumption and supporting behavior change.

### TECHNOLOGY:

- The technology must be easy to install with little or no cabling.
- The technology that the tenants use must be simple and robust.
- Ensure the unit cost price for each equipment is viable given the selected sample.
- In future smart meter consumptions available.

### PEOPLE:

- Provide ongoing support: face-to-face meetings, workshops, etc. are important.
- Installation and testing equipment is vital.
- Targeting groups with high energy consumption levels.





## 5. Conclusions

- **3-e Houses has faced a lot of challenges:**
  - Cancellation of a replicator.
  - Lack of users at some stages.
  - Elaboration of three different amendments.
  - Inclusion of new partners in the consortium.
  - Redistribution of the budget motivated by the changes.
- **3-e Houses has been a success:**
  - The pilots and replicators have been executed.
  - Users of the project are satisfied with the savings achieved.
  - The project had major impacts in terms of dissemination.





## 5. PUBLIC INFO IN OUR WEBSITE: [www.3eHouses.com](http://www.3eHouses.com)

In our website you can find the following Public Deliverables...

Del No	Deliverable Name
1.2	Definition of methodologies WP1 final report
2.4.2	Report on the user participation and acceptance of the pilots final and updated version
2.5.3	Design, implementation and pilot validation WP2 final report - 3rd revised version
2.6	Savings calculated with eeMeasure
3.4	Guidelines and best practices for the replication of the pilots
3.5	Pilots replication WP3 final report
4.1	Guidelines and best practices for energy efficiency in social houses
4.3	Questionnaire for each pilot building
4.4	Evaluation and impact assessment WP4 final report
5.2	Project web site
5.3	Dissemination material with the project results
	Final technical and financial report

... and brochures, leaflets, posters, videos, etc. from 3eHouses





## Questions

# Questions?





Thanks for your attention

<http://www.3ehouses.eu/>

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