



# SAVE@Work4Homes

## Supporting European Housing Tenants In Optimising Resource Consumption

### Deliverable 2.1: Tenant and organisational requirements

**Version 1a (additional version to V1)  
(October 2007)**

<http://save.atwork4homes.eu>

*Task 2.1 A programme of research into European tenant households' energy behaviour and information needs is designed. Gaps in knowledge of user and organisational requirements are identified which require further research, including user attitudes to providers of energy-related information and to online/print media. Attitudes to current information on energy consumption and to related information provision, and including questions on energy-related services are key topics. Topics requiring primary data gathering are identified.*

*Task 2.2 Requirements research is carried out. Methods of telephone interviews, internet questionnaire and group discussions/focus groups are chosen to meet criteria of representativeness, depth and timeliness criteria. This work is covered to as large extent as possible using the regular tenant surveys carried out by participants.*

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## **SAVE@Work4Homes**

**Supporting European Housing Tenants  
In Optimising Resource Consumption**

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## Foreword

In the first stage, the project needed first global results to determine the services to deliver to the tenants.

So, a first version – called D2.1 version 1 – was published the 5<sup>th</sup> of July 2007, with the data collected between April and the end of June in order to make possible the writing of the deliverable D2.2 which describes the first version of the Energy Awareness services (**SAVE4Homes services**) to deliver to the tenants and had to be published before the end of July 2007 to permit the development of the first release of the services.

A second version was planned to complete the analysis on some points:

- Better knowledge of the sample in each site (age, household composition, amount of revenues, Internet access and PC equipment),
- Comparison with other surveys (mainly Eurobarometer 2005)
- Analysis site by site to permit the adaptation of each service to the local situation planned in the D2.3 : version 2 of the **SAVE4Homes** services to deliver to the tenants,
- Analysis by age of tenants on some questions when they may change drastically the tenants behaviour,
- Analysis by technical equipment (individual or collective heating system, ventilation use) when useful.

Due to a very different approach of the work done in the first and second analysis, a second document was produced to complement the first one and the idea of merging the two documents was cancelled.

**The present document is a complement of the version 1 and the two documents (version 1 and this one called V1a) are considered together as the version 2 of the deliverable D2.1.**

# 1 Introduction

The private households are one of the biggest variables in consumption of energy next to industry and transport. Relating to the countries involved in the research project this means for example:

- The final energy consumption in the residential-services sector in France grew steadily by 25 % from 1973 to 2002 (ADEME 2007).
- Within one decade, between 1990 and 2001, the domestic sector in the United Kingdom became the largest sub-sector of final energy consumption (31 %) followed by transport (26 %), industry (25 %) and services (18 %) (Department of Trade and Industry 2002, p9).
- A similar growth has been observed in Germany where the percentage of private household's final energy consumption amounts approx. 29 % in 2005 (UBA 2007, p11).

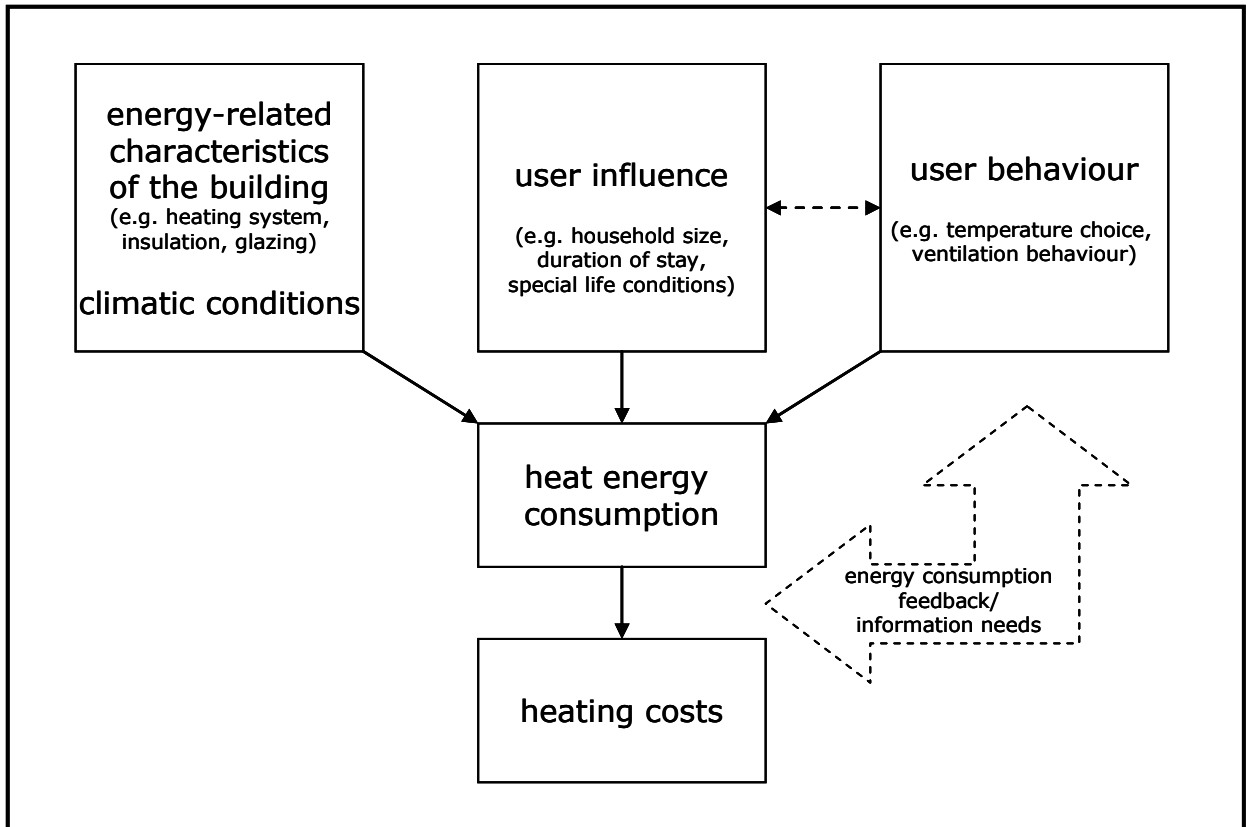
Most energy has been used for space and water heating. Therewith the residential energy use is one of the fastest growing areas of demand after transport. The reasons for that are risen individual comfort levels, more living space per capita and a greater use of electrical goods (cf. OECD 2002, p45 et seq.). In view of these facts the decrease of residential energy use takes a centre stage within the policy on energy and climate.

The energy consumption of private households basically depends on two concomitant factors - so-called environment- and person-related factors (see figure 1). Taking the heat energy consumption as an example the environmental factors are the energy-related characteristics of residential buildings (location and size of particular dwellings, type of heating, insulation, glazing), climatic conditions, etc. Person-related factors are the user influence such as household size (one-person household or extended family), duration of stay (employed person or pensioner) or individual life situation (people with special heat demand like babies or old people) and the user behaviour such as temperature choice or ventilation behaviour (cf. Hertle et al 2005, p19). A number of empirical studies<sup>1</sup> demonstrated e.g. a broad range of room temperatures people feel comfortable with. Additionally the room temperatures depend on the room use and may differ within the family. The

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<sup>1</sup> e.g. concerning Germany and Austria: cf. Keul 2001 (range from 15 to 27 degrees Celsius), Treberspurg 2004 (18-25 degrees) or Emmerich 2004, p49. All named studies are related to low energy and passive houses.

same applies to ventilation behaviour. It differs according to individual preferences, the availability of a mechanical ventilation system or the room use<sup>2</sup>. According to this, and comparable structural, technical and climatic conditions notwithstanding, big inter-individual differences in energy consumption can be caused by person-related factors. They also may implicate a “wasteful” consumption of energy.



Source: author's own illustration

**Figure 1: Scheme of influencing variables of the heat energy consumption**

Aimed at energy savings in residential sector the main problem seems to be that most people have only “a vague idea of how much energy they are using for different purposes and what sort of difference they could make by changing day-to-day behaviour or investing in efficiency measures” (Darby 2006, p3). Darby has reviewed sources and findings from Scandinavia, the Netherlands and English speaking countries, which have verified energy savings (most of all electricity) up to 20 %, and found that “instantaneous direct feedback in combination with frequent, accurate billing (a form of indirect feedback) is needed as basis for sustained demand reduction” (ibid.). Another empirical study shows that typical en-

<sup>2</sup> c.f. e.g. Emmerich 2004, p109; Rohracher et al 2001  
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ergy consumers “would, given the right feedback, examine reasons for change in consumption and may be stimulated to take action” (Roberts 2004, p4). Fischer (2007, p1) determined that “there is some indication that the most successful feedback combines the following features: it is given frequently and over a long time, provides an appliance-specific breakdown, is presented in a clear and appealing way, uses computerized and interactive tools, and may involve historic or normative comparisons.”

According to this the **SAVE@Work4Homes** project aims to achieve a significant reduction in energy consumption in social housing across Europe by providing information and support to tenants enabling them to optimise their energy consumption behaviour. Social housing providers in Angers (Le Toit Angevin - LTA), Moulins (Moulins Habitat - MH), Belfast (Northern Ireland Housing Executive - NIHE), Frankfurt-on-Main (Nassauische Heimstätte - NH), Berlin (Stadt und Land - SuL) and Karlsruhe (Volkswohnung - VoWo) develop and test so-called Energy Awareness Services (**SAVE4Homes** services) via internet portals, in-flat displays, print media or the like which give an opportunity to the tenants to get an automatic monitoring of previous and current energy consumption combined with self assessment schemes and recommendations concerning an energy saving behaviour.

In preparation of this development process an analysis of tenant’s requirements in the form of a broad-based tenant survey at all above mentioned sites was realised. Research into tenant energy behaviour and attitudes measures the characteristics of demand for Energy Awareness Services and the information requirements to be met, identifies gaps in knowledge and typical wrongdoing in energy consumption behaviour patterns, and is essential for selecting options in respect of service components, their design and specifications. Attitudes to current information on energy consumption and to related information provision and including questions on energy-related services were key topics.

This work is essential baseline for setting up effective field trial tests and initiating provision of common-framework Energy Awareness Services and provides independent outputs for coordinating uptake in social housing across Europe.

## 2 Survey design and data collection

The tenant questionnaire used by all sites was developed by German Institute for Housing and Environment (IWU) and consensually defined by all project partners. The content of the questionnaire was almost identical at each site. Only a few questions were adapted to the particularity of each country or the specific of the future **SAVE4HOMES** services. The questionnaire includes the following issues:

- knowledge of and worries about environmental issues<sup>3</sup> and environmental awareness
- information about energy consumption and energy saving, attitudes to energy saving, subjective norms
- everyday energy consumption behaviour including heating and ventilation behaviour
- interest in information how to save energy, acceptability of the planned services
- sociodemographic characteristics of tenant households (age, gender, household size, income, access to internet and a computer, etc.)

The survey was carried out between March and June 2007 - depending on local conditions either paper-based by mail or by telephone or by face to face interviews. The number of respondents in France and Germany was very similar (about 1.000 each). In Northern Ireland, where only one partner is involved, more than 500 tenants were interviewed (see figure 2).

Site	VoWo	SuL	NH	NIHE	LTA	MH	Total
Method of data acquisition	paper-based	paper-based	face to face	face to face	by telephone	paper-based	
Number of respondents	288	250	510	541	700	348	2637

**Figure 2: Method of data acquisition and sample sizes**

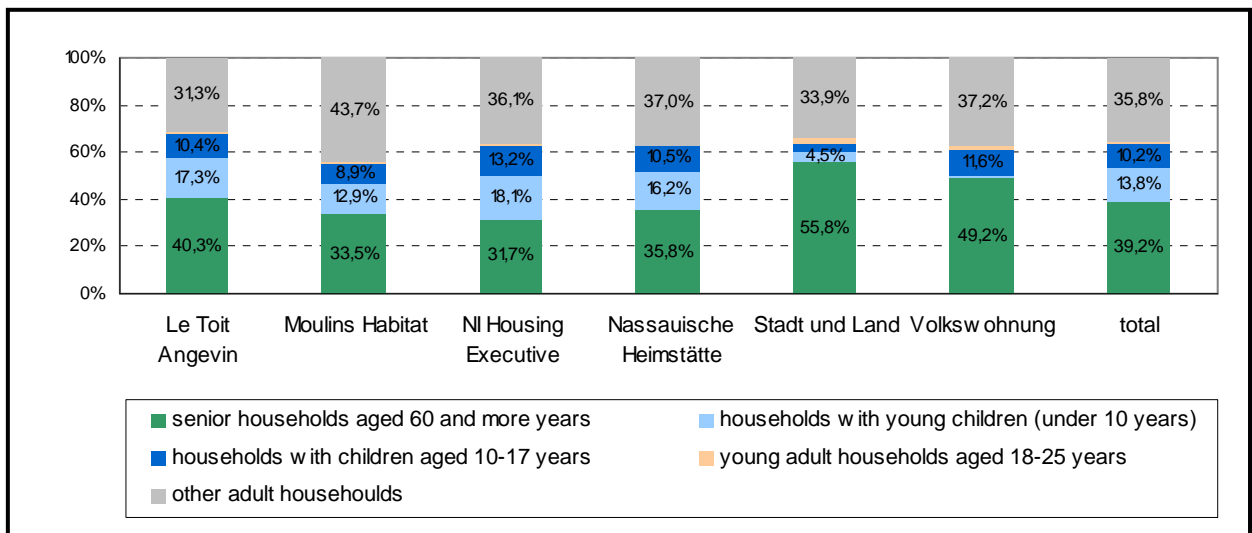
<sup>3</sup> These questions are taken from EUROPEAN COMMISSION (2005).  
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### 3 Findings

#### 3.1 Sample description

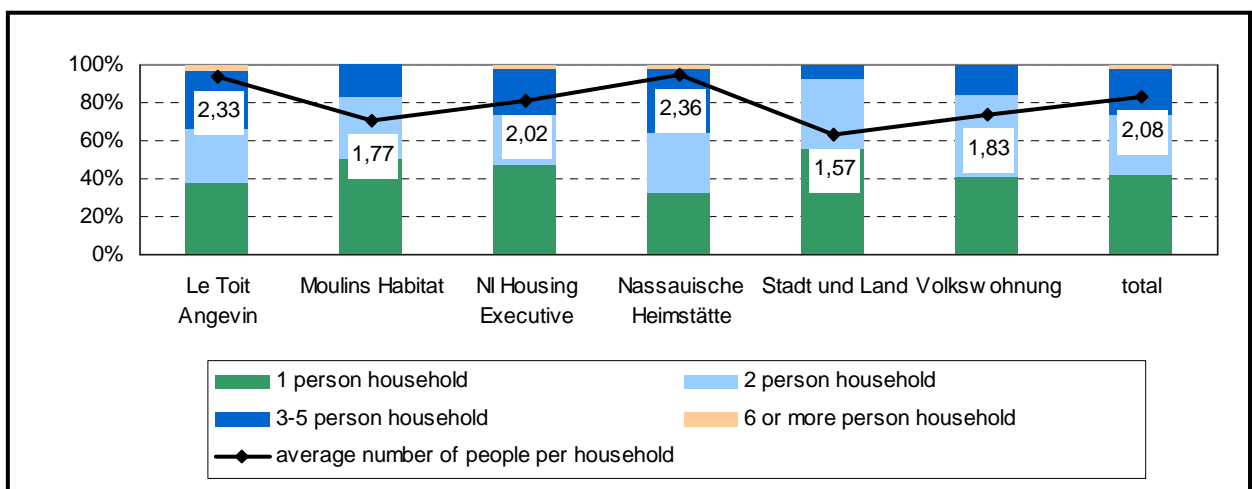
2.637 tenants took part in the survey - 1507 women (58 %) and 1080 men (42 %).<sup>4</sup>

The senior households with persons aged 60 and more years are important at all sites, followed by tenant's households without children. In Berlin (Stadt und Land), Karlsruhe (Volkswohnung) and Angers (Le Toit Angevin) the elderly are the biggest tenant's group by far.



**Figure 3: Household type and composition**

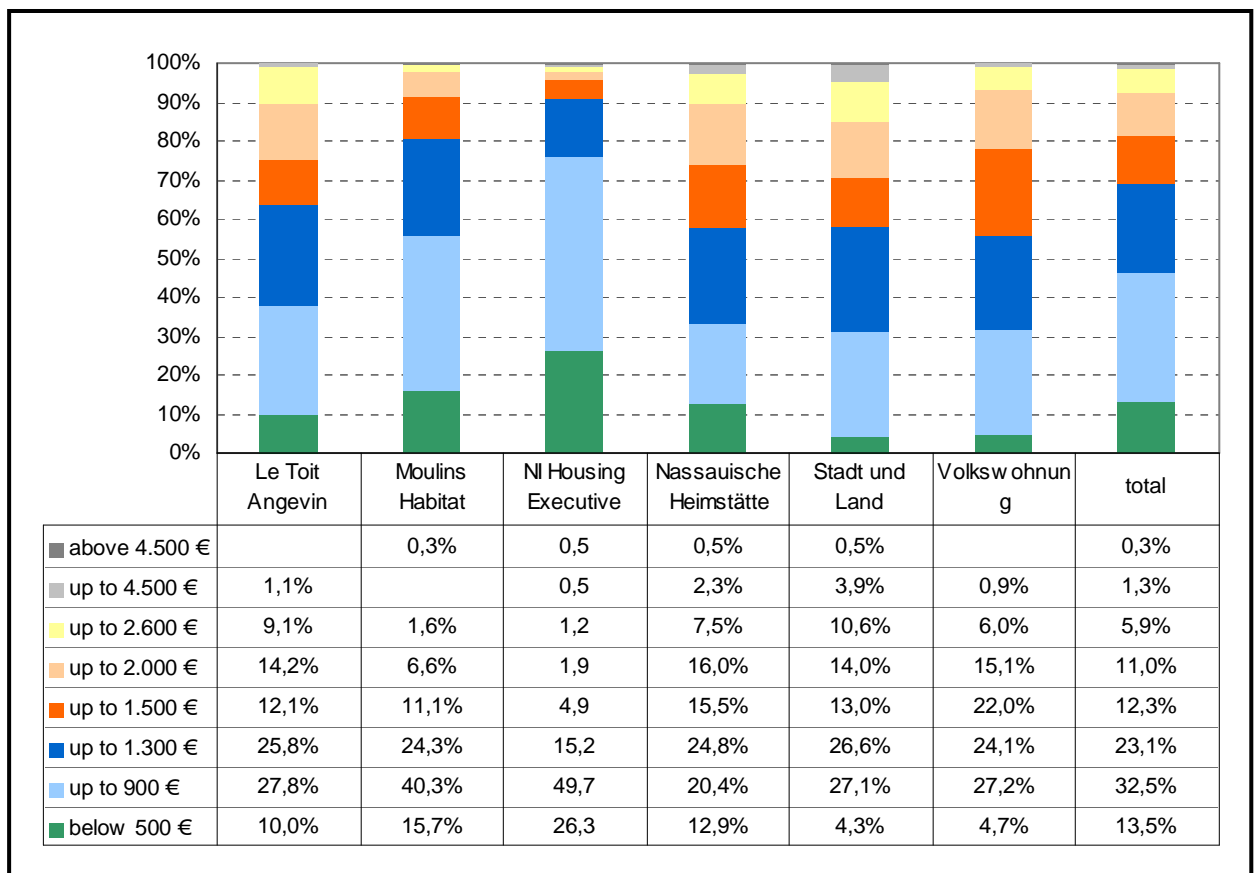
According to this most of the interviewed tenants live in one- or two-person households.



**Figure 4: Household size and average number of people per household**

<sup>4</sup> 50 cases not specified

The European social housing companies accommodate people with - in general - low incomes who often live on social security benefits. More than 80 % of the respondents live on net household incomes per month up to 1.500 €. They live on incomes from employment/self employment (35 %) or are on supplementary benefit (28 %) or draw a pension (25 %) or unemployment benefits (8 %).<sup>5</sup> The interviewed tenants in Northern Ireland have a lower amount of net household income per month at their disposal than French and German tenants' households (statistically significant, Cramer-V 0,245; significance level:  $p < 0.01$ ). People aged 70 and more years described the lowest income ( $p < 0.01$ ).

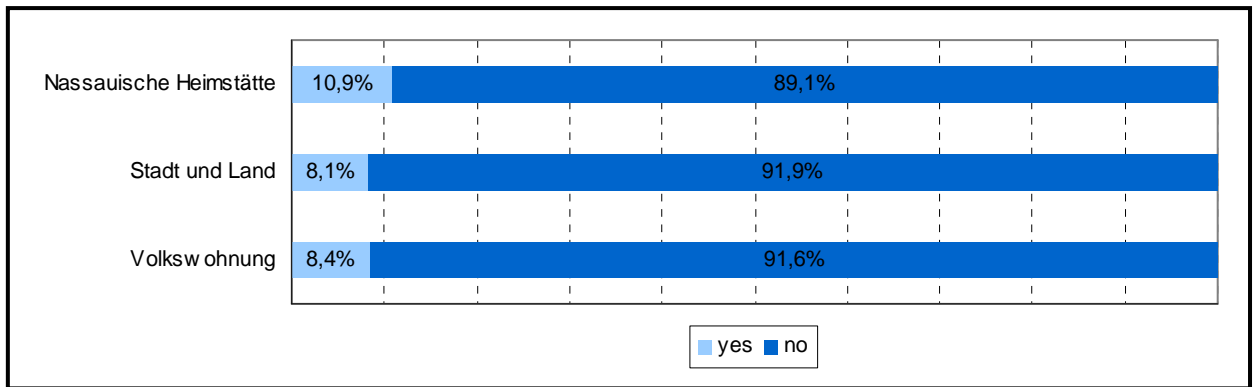


**Figure 5: Amount of the net household income per month**

(Question: Amount of the net household income per month: To which category do you belong? [Select one only])

One German specific: Between 8 and 11 % of the German tenants get their rent and running costs paid by the municipality.

<sup>5</sup> Question: What is the predominant source of your household income? [Tick the appropriate statement]

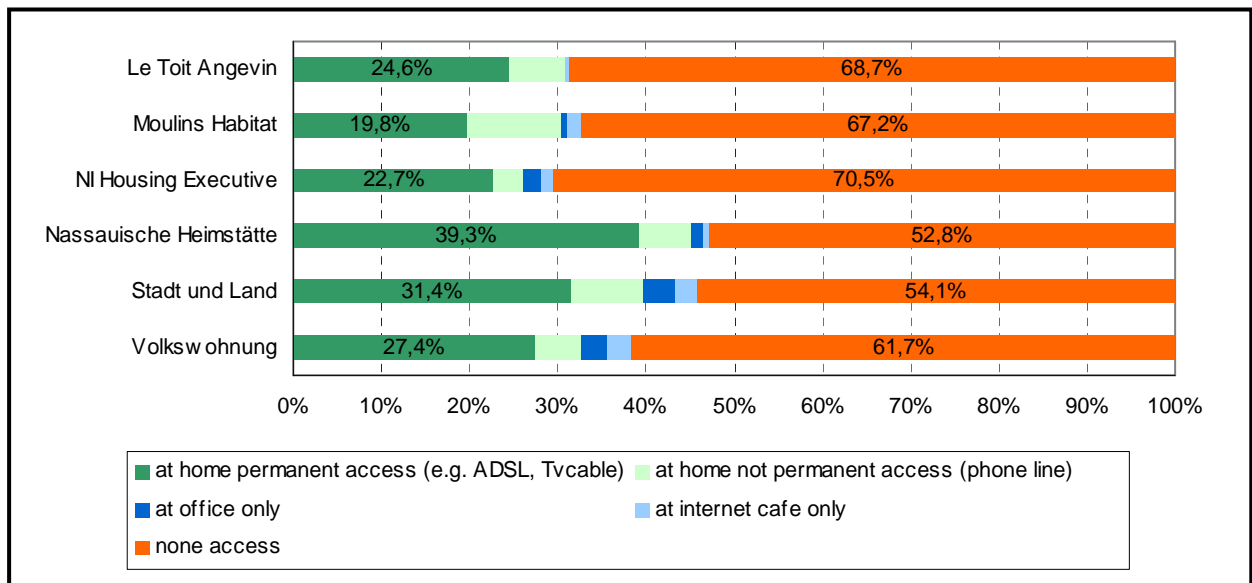


**Figure 6: Rent and running costs paid by the municipality (Germany only)**

(Question: Are your rent and running costs paid by the municipality?)

In consideration of the fact that the energy awareness services primarily will be offered via internet portals it was necessary to know the diffusion rate of internet usage and private computers.

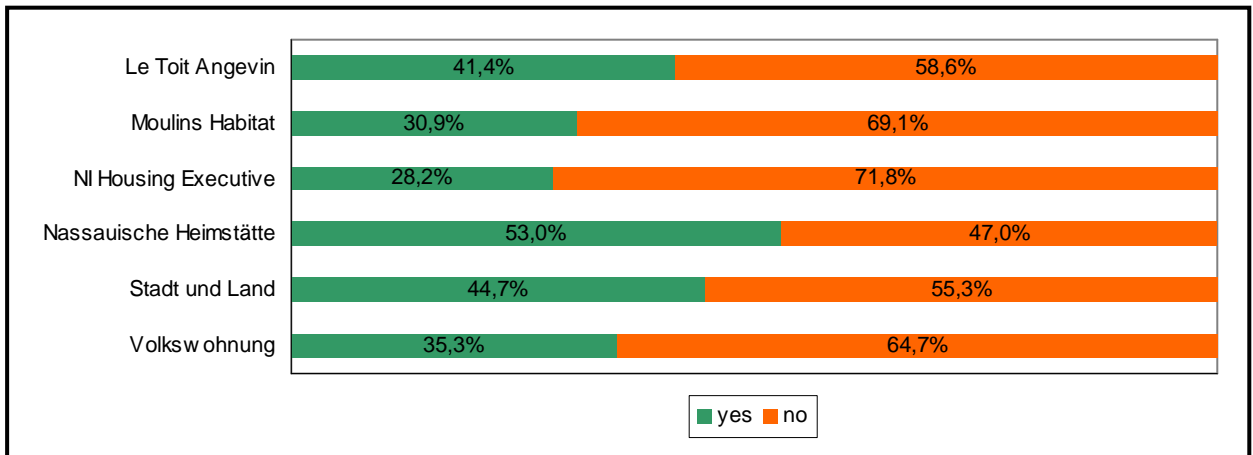
Most tenants at all sites do not have an access to internet. In addition to this they often have no private access to a computer.



**Figure 7: Possibility and kind of internet access by site**

(Question: Do you have an access to internet? Closed response options [Select one only])

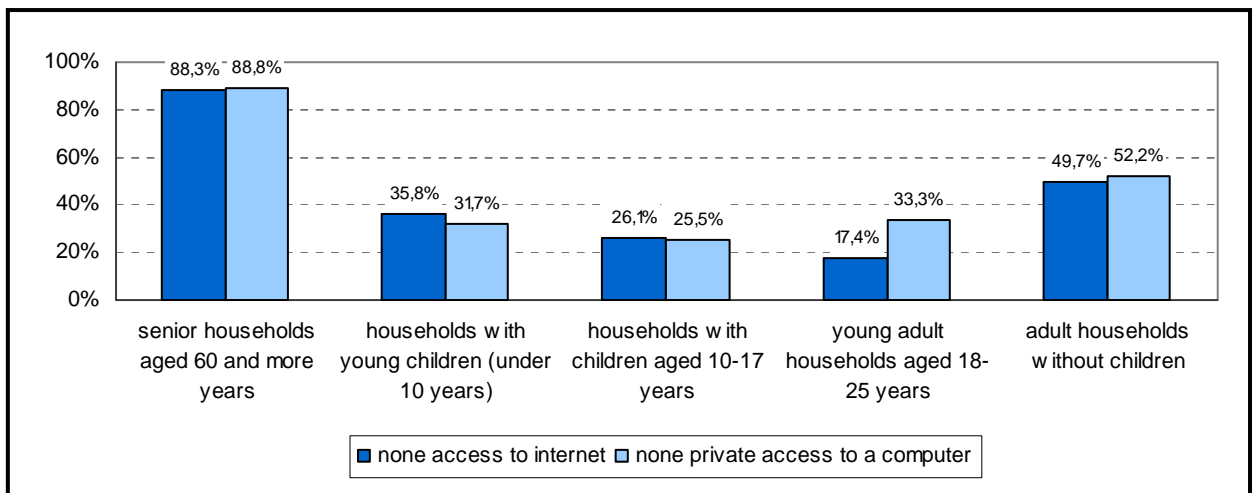
Tenants of Nassauische Heimstätte and Stadt und Land are comparatively well provided.



**Figure 8: Private access to a computer (PC/laptop) by site**

(Question: Do you have private access to a computer (PC/laptop)?)

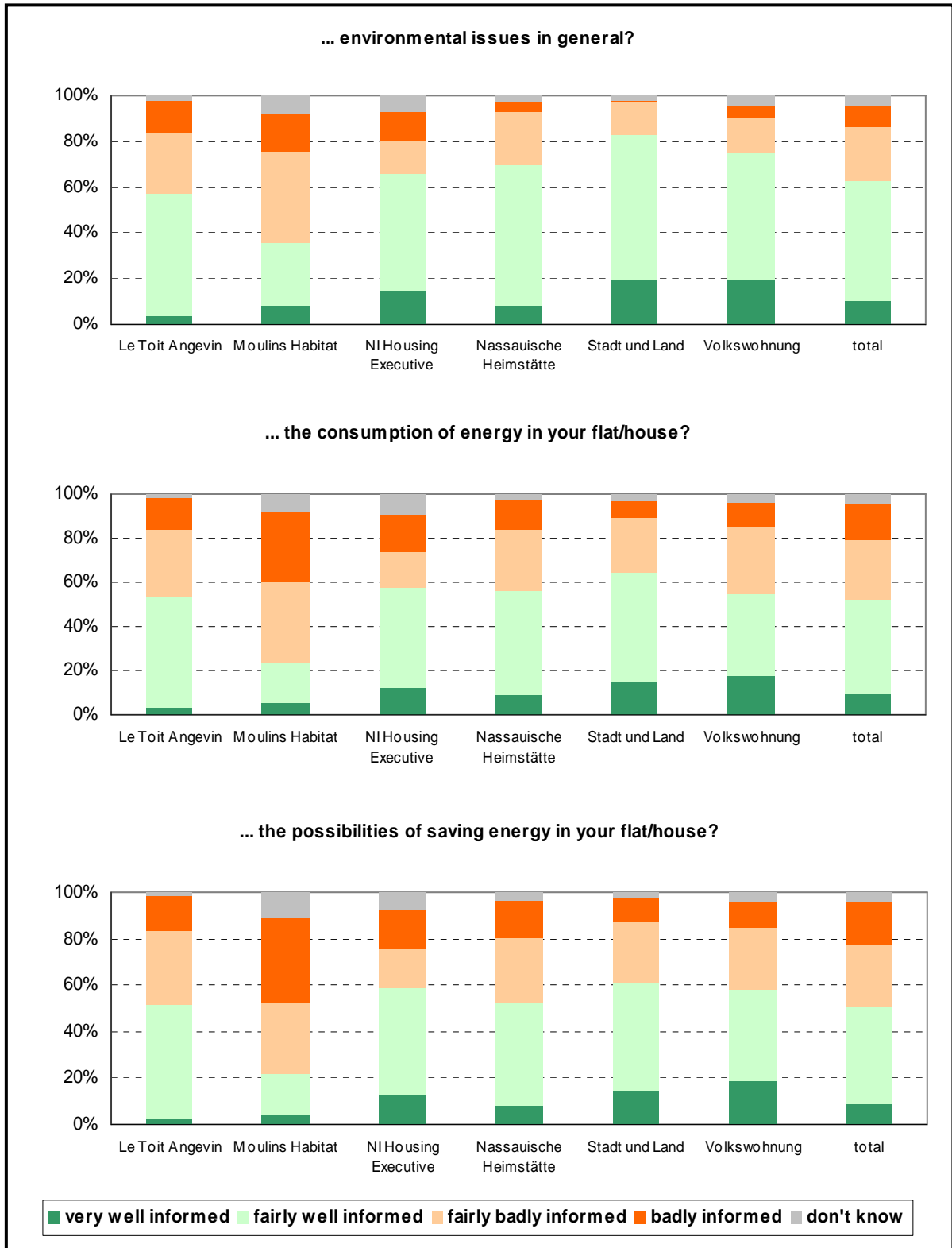
Especially the senior households aged 60 and more years are badly equipped.



**Figure 9: Percentage of households without internet access and computer by household type**

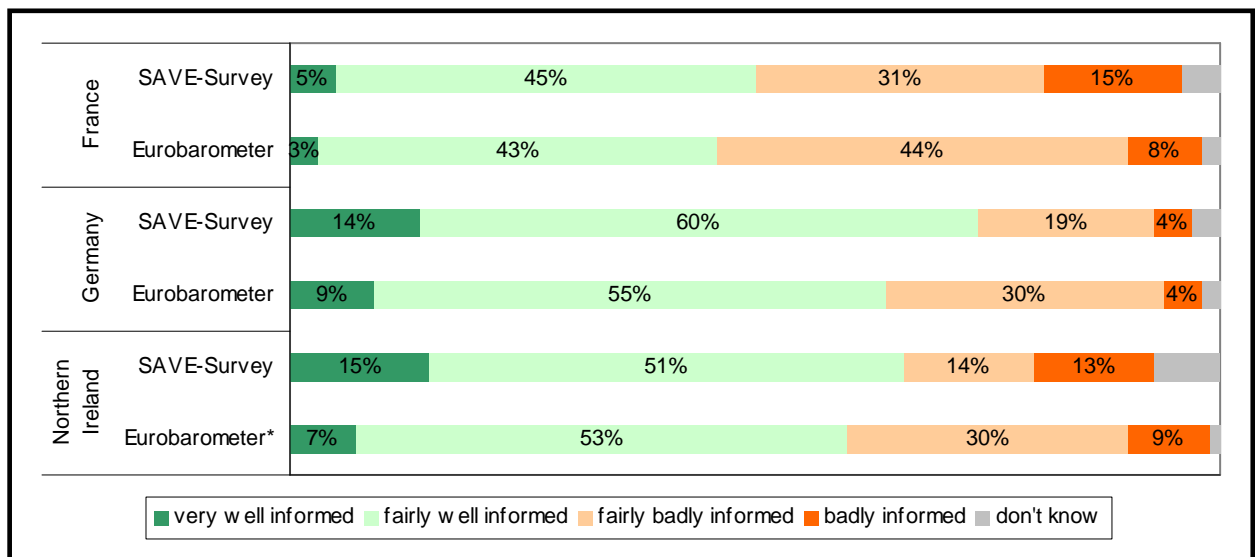
### 3.2 Attitudes and knowledge about environmental issues

Except Moulins Habitat the interviewed tenants in the main feel fairly or very well informed about environmental issues in general.



**Figure 10: How informed do you feel about ...**

This finding is similar to the results of the Eurobarometer<sup>6</sup> wherefrom this question was copied. Figure 11 show that the tenants describe their level of information even a little bit better than the average of the resident population.



**Figure 11: How informed do you feel about environmental issues in general?**

(results of the survey in comparison with the results of the Eurobarometer 2005 by country)

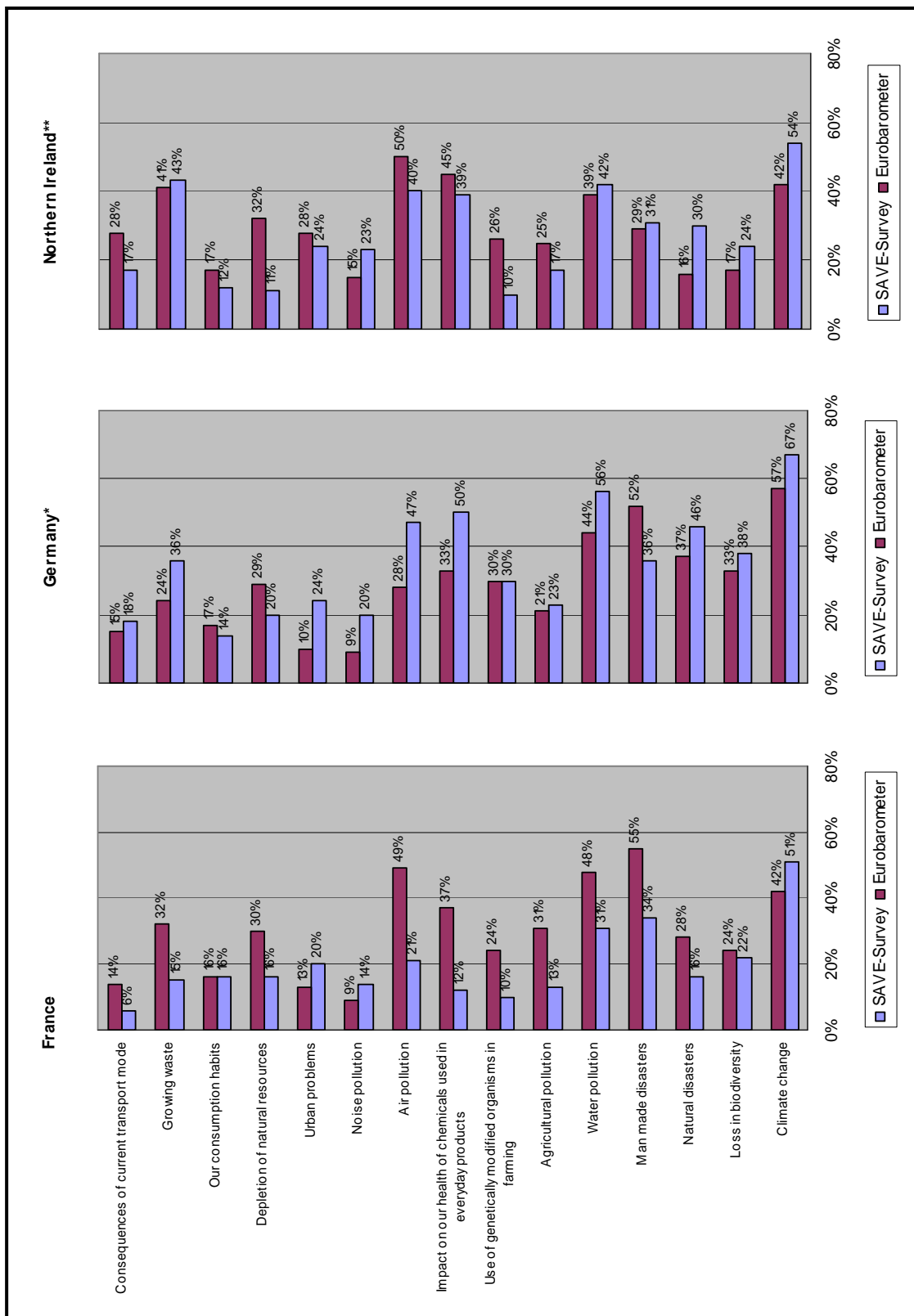
\* covered the whole UK

Compared with this the tenant’s knowledge about the consumption of energy in their flats or houses and about their possibilities of saving energy (see figure 10) seems to be upgradeable. Nearly half of the tenants feel fairly badly or badly informed about it or do not know this correctly. The differences between the sites and countries are statistically significant ( $p < 0.01$ ). German and Northern Irish tenants evaluate their standard of knowledge generally better than French tenants. The elderly (60 years and more) always feel better informed than younger people ( $p < 0.01$ ).

In all three countries most tenants are worried about the climate change. In comparison with the results of the Eurobarometer these percentages are all above the respective average (see figure 12). The fear of water pollution (seas, rivers, lakes and underground sources) and man made disasters like major oil spills or industrial accidents are also widespread in all countries. Especially in Northern Ireland the growing waste seems to be an important environmental problem, while German tenants more clearly are afraid about the impact on their health of chemicals used in everyday products. In France the tenants mention the loss of biodiversity (extinction of animal species, flora and fauna, etc.) and urban problems like traffic jams, pollution or lack of green space.

<sup>6</sup> Source: European Commission (2005). Special Eurobarometer 217. The attitudes of European Citizens towards environment.





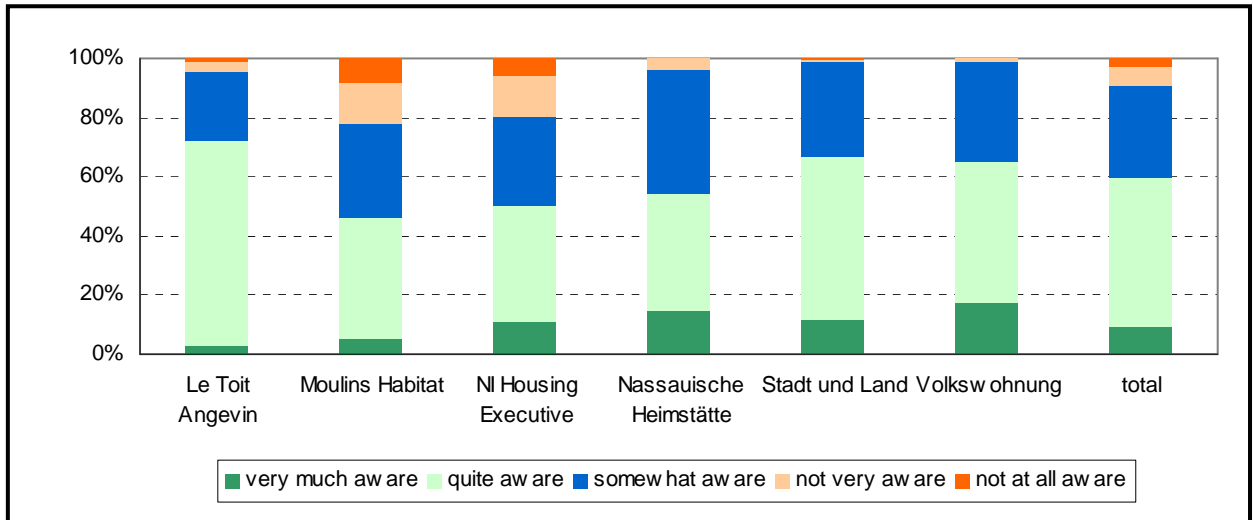
**Figure 12: Attitudes towards the environment, results of the survey in comparison with the results of the Eurobarometer 2005 by country**

(Question: Please list the five main environmental issues that you are worried about from the following list! [max. 5 answers])

\* Survey data: without Nassauische Heimstätte (There were more than five answers possible.);

\*\* Eurobarometer data: covered the whole UK

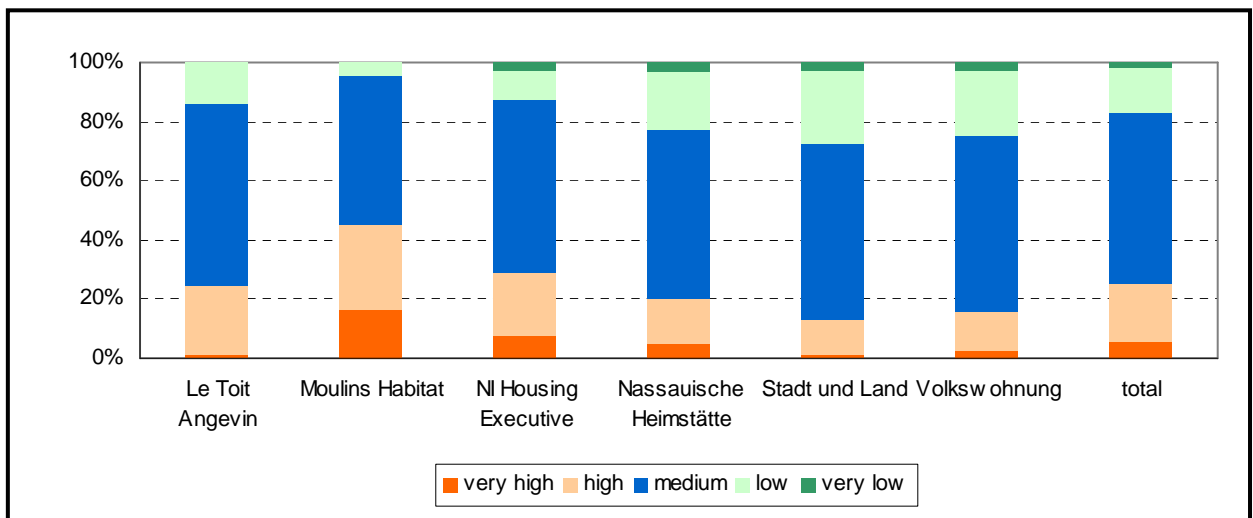
Most tenants describe themselves as being aware of environmental issues (see figure 13) and consuming energy for space and water heating and other uses in a moderate way (see figure 14).



**Figure 13: Awareness of environmental issues**

(Question: To what extent would you describe yourself as being aware of environmental issues?)

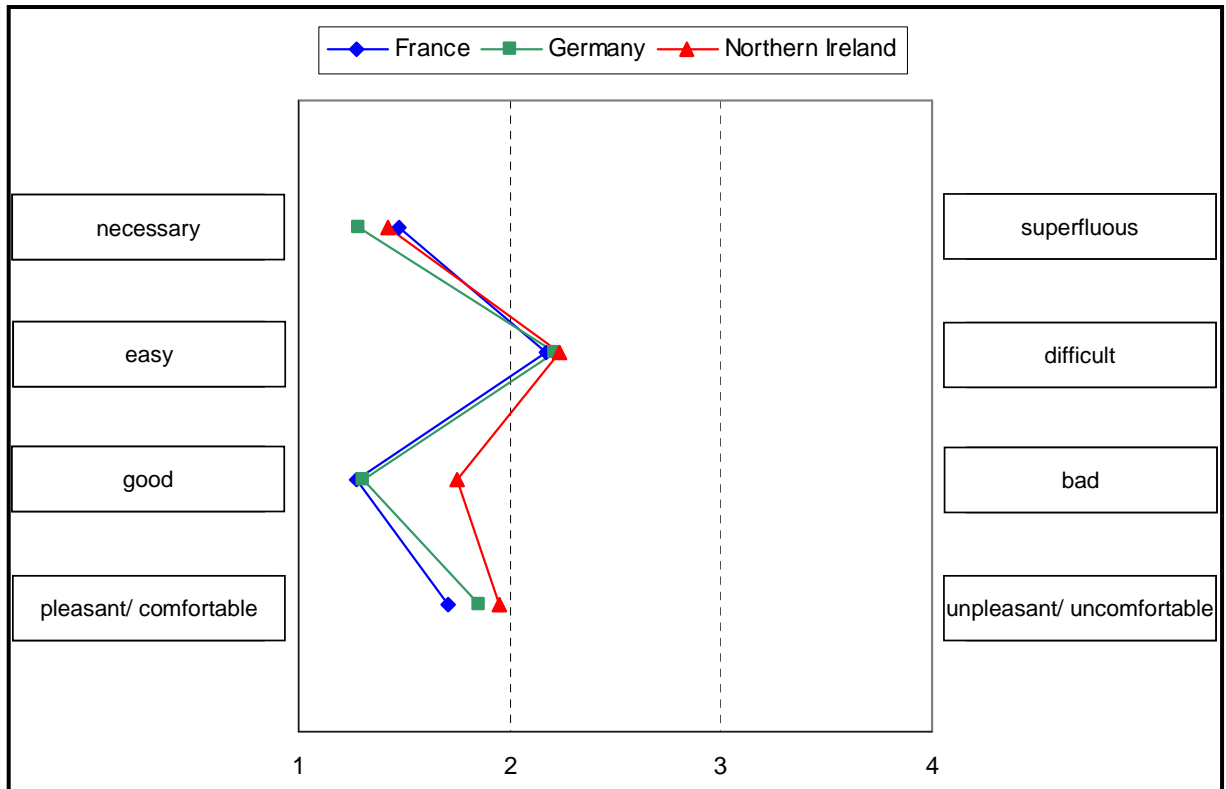
Statistically significant differences can be found between the countries and sites: The Northern Irish tenants and the tenants of Moulins Habitat specify a smaller environmental awareness and higher energy consumption than other. The same applies to young tenants (less than 30 years old). Differences between the several household types could not be observed.



**Figure 14: Tenant's self assessment of energy consumption**

(Question: Do you think that your energy consumption these days (space and water heating, other uses) is...?)

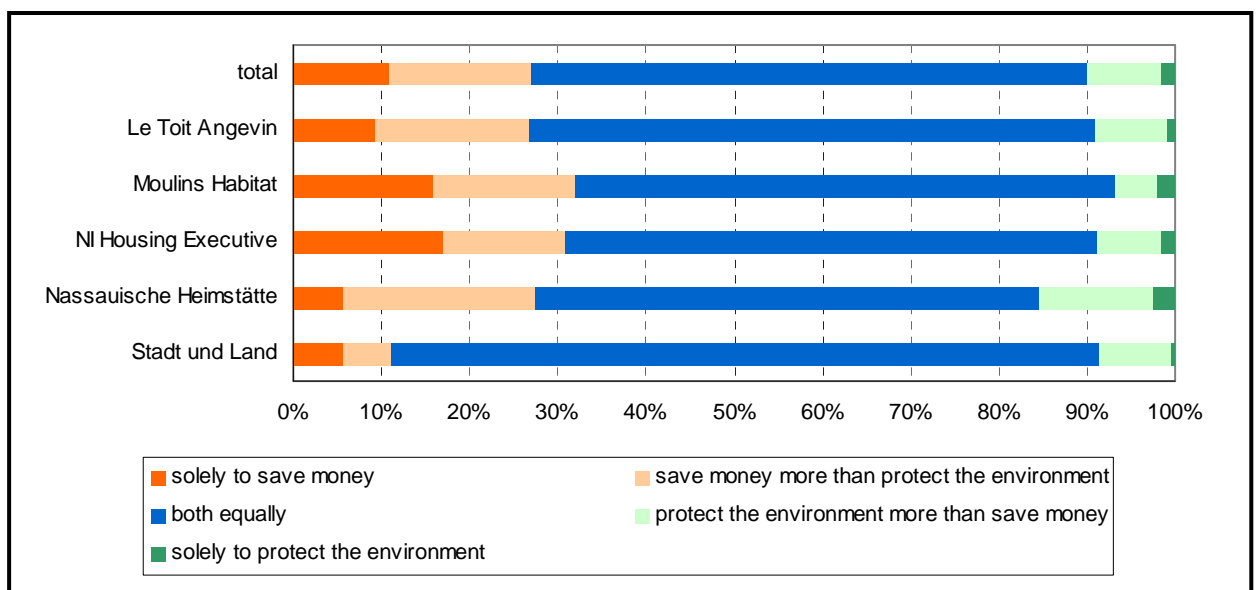
Nevertheless most tenants at the involved sites think that energy saving is necessary, good and comfortable, but on the other hand not always easy.



**Figure 15: Attitudes towards energy saving in tenant's everyday life, mean values**

(Question: What do you think about energy saving in your everyday life at home? Energy saving is ...?)

Saving money as well as protecting the environment motivates the tenants to save energy. However, in relation to the environmental protection the saving of money is a more important motive - in France and Northern Ireland more clearly than in Germany ( $p < 0.01$ ). No significant differences between age groups or household types were observed.



**Figure 16: Tenant's motivation to save energy**

(Question: Which motivates you more to save energy - saving money or protecting the environment?)

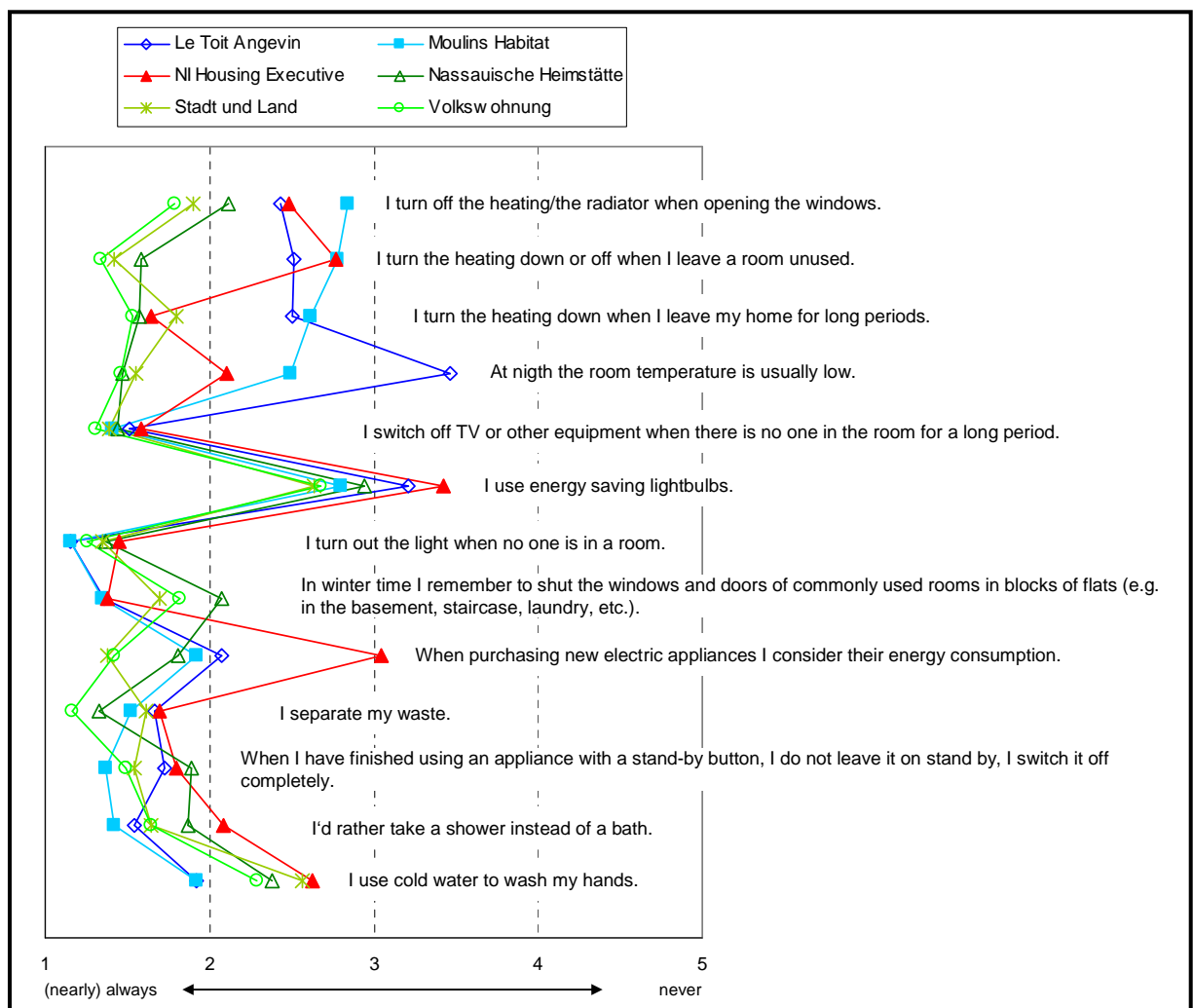
Volkswohnung: not specified

### 3.3 Everyday energy consumption behaviour

In the majority of cases the tenants at all sites (see figure 17) act in an - more or less - energy-saving way. Most popular behaviour pattern of all sites are:

- to switch off the TV or other equipment completely when there is no one in the room for a long period
- to turn out the light when no one is in a room
- to separate the waste
- to take a shower instead of a bath

With regard to the heating and ventilation behaviour some particularly significant differences between the sites could be observed.



**Figure 17: Behaviour pattern by site, mean values**

(Question: Which is applicable to you with regard to the following statements? Scale: (nearly) always - often - sometimes - rarely - never; Further response option: I cannot do this. (This option is not considered here.))

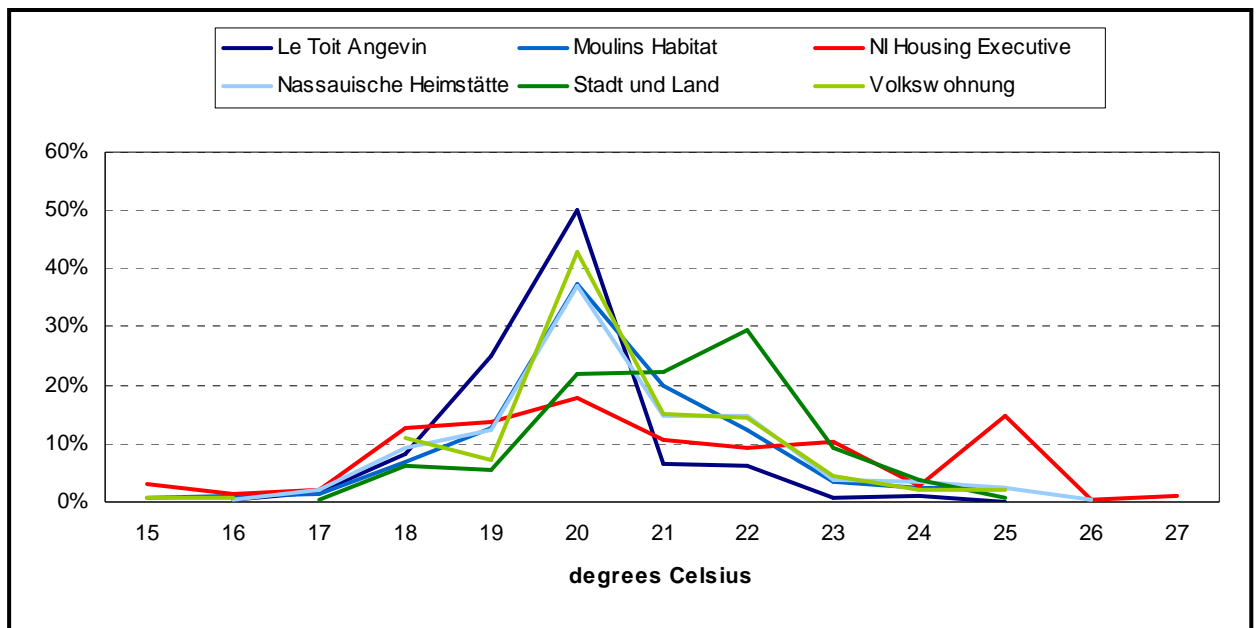
In view of these behaviour patterns concerning the heating should be noted that there are a great number of French tenants who cannot turn the heating off or down by themselves (see figure 18; see also figures 23 and 24).

	LTA	MH	NIHE	NH	SuL	VoWo
I turn off the heating/the radiators when opening the windows.	26,7	34,2	3,5	2,0	0,4	0,7
I turn the heating down or off when I leave a room unused.	26,9	34,5	5,2	4,3	0,8	0,7
I turn the heating down when I leave my home for long periods.	26,9	37,1	4,3	2,2	-	0,3

**Figure 18: Percentage of tenant's households without ability to turn the heating off or down (Response option: I cannot do this.)**

### 3.4 Heating and ventilation

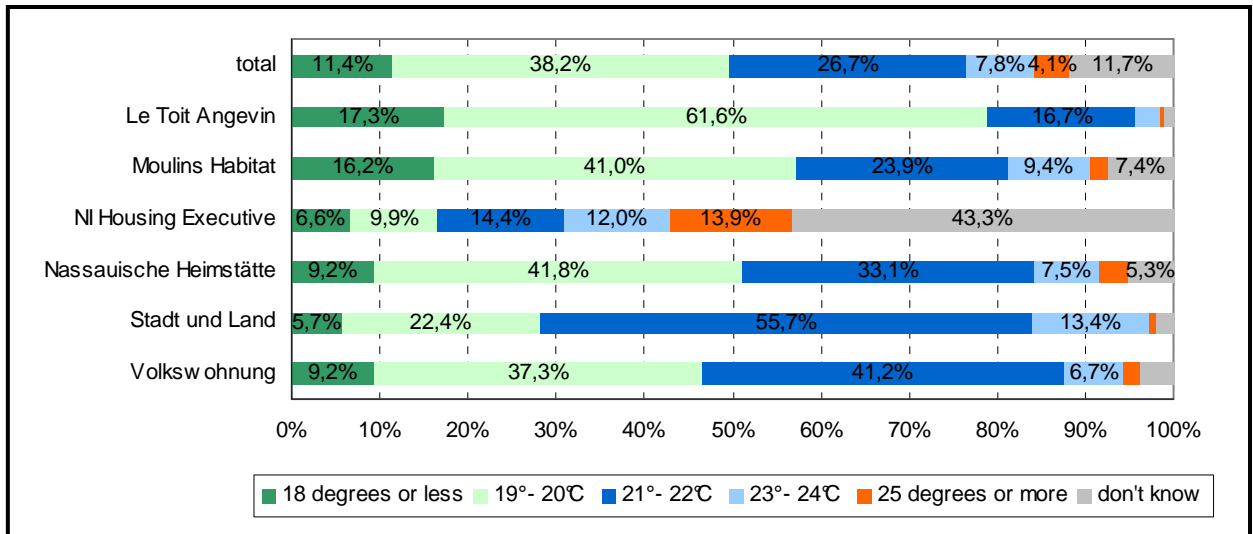
The room temperatures tenants feel comfortable with vary from people to people. They range from 15 to 27 degrees Celsius, at an average of 20 till 21 degrees. Elder people more often named higher ideal room temperatures than younger tenants ( $p < 0.01$ ). On the other hand they do not have significantly higher room temperatures in winter.



**Figure 19: Ideal room temperatures, by site**

(Question: What is your ideal room temperature?)

The temperature tenants have in winter (see figure 20) may differ from the ideal temperature tenants feel comfortable with (see figure 21). Especially the tenants of Moulins Habitat can not achieve their ideal room temperature in winter. This result correspond with figure 22 which shows that more than one quarter of Moulins Habitat's tenants describe their room temperature usually as too low.



**Figure 20: Room temperature in winter, by site**

(Question: Which room temperature does your home have in winter?)

Le Toit Angevin		ideal room temperature				
		≤ 18	19-20	21-22	23-24	≥ 25
room temp. in winter	≤ 18	66,7	12,8	6,7	0	0
	19-20	30,6	71,0	38,2	8,3	0
	21-22	2,8	12,4	51,7	33,3	0
	23-24	0	1,7	3,4	58,3	0
	≥ 25	0	0,6	0	0	100

Moulins Habitat		ideal room temperature				
		≤ 18	19-20	21-22	23-24	≥ 25
room temp. in winter	≤ 18	22,6	21,1	10,7	5,6	14,3
	19-20	41,9	46,0	35,9	61,1	0
	21-22	9,7	21,7	36,9	16,7	14,3
	23-24	12,9	5,0	13,6	16,7	28,6
	≥ 25	0	1,9	1,9	0	28,6

NI Housing Executive		ideal room temperature				
		≤ 18	19-20	21-22	23-24	≥ 25
room temp. in winter	≤ 18	32,4	6,5	0	8,0	3,1
	19-20	29,7	40,3	2,6	4,0	0
	21-22	18,9	25,8	43,6	4,0	3,1
	23-24	5,4	19,4	33,3	64,0	9,4
	≥ 25	5,4	4,8	17,9	16,0	84,4

Nassauische Heimstätte		ideal room temperature				
		≤ 18	19-20	21-22	23-24	≥ 25
room temp. in winter	≤ 18	48,1	6,3	3,5	0	0
	19-20	42,6	66,5	15,4	11,8	7,7
	21-22	5,6	24,3	72,0	11,8	7,7
	23-24	1,9	1,7	6,3	64,7	7,7
	≥ 25	0	0,8	0,7	5,9	76,9

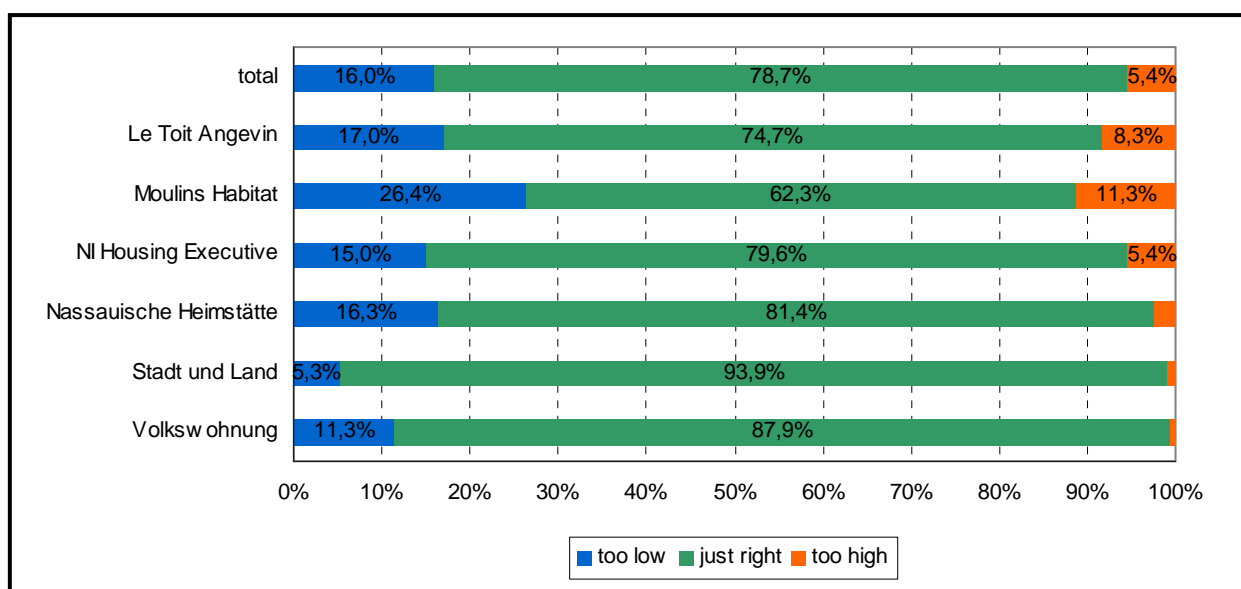
Stadt und Land		ideal room temperature				
		≤ 18	19-20	21-22	23-24	≥ 25
room temp. in winter	≤ 18	35,3	9,1	1,6	0	0
	19-20	47,1	57,6	3,2	3,2	100
	21-22	5,9	31,8	81,5	35,5	0
	23-24	5,9	0	11,3	58,1	0
	≥ 25	5,9	0	0	3,2	0

Volkswohnung		ideal room temperature				
		≤ 18	19-20	21-22	23-24	≥ 25
room temp. in winter	≤ 18	31,3	8,3	1,3	0	0
	19-20	43,8	61,4	7,7	5,9	0
	21-22	18,8	28,0	83,3	23,5	0
	23-24	3,1	0	6,4	64,7	50,0
	≥ 25	0	0,8	0	5,9	50,0

**Figure 21: Correspondence between room temperature in winter and ideal room temperature (in °C) by site (column percentage<sup>7</sup>)**

<sup>7</sup> Difference to 100 %: category "don't know" (temperature in winter)  
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**Figure 22: Room temperature usually is ..., by site**

(Question: Do you usually feel comfortable with the temperature in your home? Which of the following statement comes closest? Response options: Room temperature usually is ...)

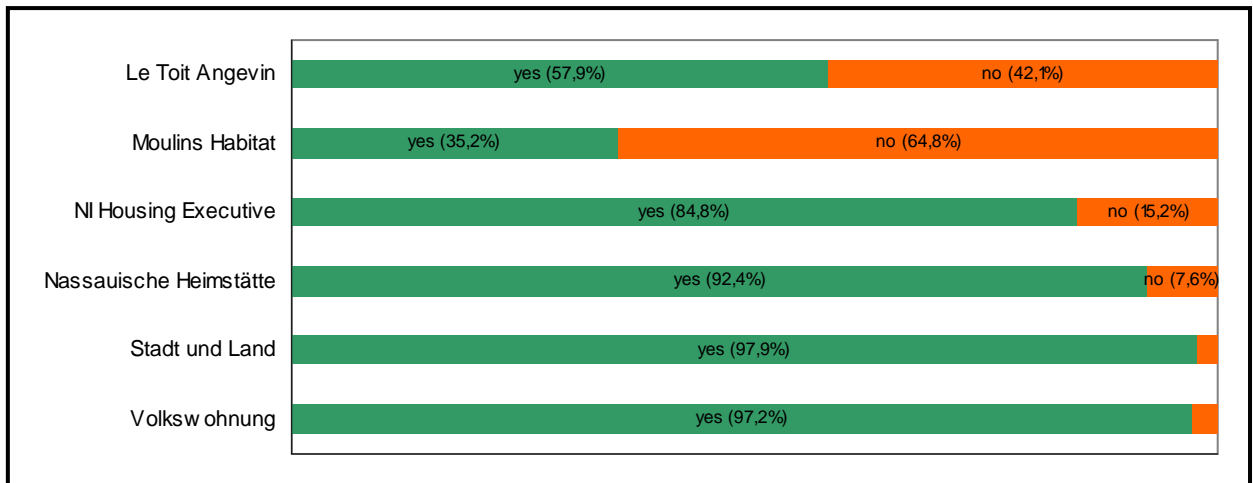
Except the tenants of the Northern Ireland Housing Executive the majority of tenants describe themselves as being able to monitor and regulate the room temperature by themselves.

Le Toit Angevin		easy to regulate				Moulins Habitat		easy to regulate			
		yes	no	imp.	total			yes	no	imp.	total
easy to monitor	yes	56,5	9,0	0,6	66,1	easy to monitor	yes	64,3	15,9	-	80,2
	no	1,6	14,3	5,5	21,4		no	-	11,1	-	11,1
	imp.	0,3	0,3	11,9	12,5		imp.	-	8,7	-	8,7
	total	58,4	23,7	17,9	100		total	64,3	35,7	-	100
NI Housing Executive		easy to regulate				Nassauische Heimstätte		easy to regulate			
		yes	no	imp.	total			yes	no	imp.	total
easy to monitor	yes	43,2	2,6	0,9	46,8	easy to monitor	yes	66,8	7,5	0,2	74,5
	no	19,1	21,5	1,9	42,5		no	12,2	10,6	0,4	23,2
	imp.	5,1	1,1	4,5	10,8		imp.	1,2	0,6	0,6	2,4
	total	67,4	25,3	7,4	100		total	80,2	18,7	1,2	100
Stadt und Land		easy to regulate				Volkswohnung		easy to regulate			
		yes	no	imp.	total			yes	no	imp.	total
easy to monitor	yes	81,3	2,9	1,2	85,5	easy to monitor	yes	78,7	2,8	0,4	81,9
	no	3,7	5,8	0,4	10,0		no	5,3	5,7	0,7	11,7
	imp.	2,9	1,2	0,4	4,6		imp.	1,8	1,4	3,2	6,4
	total	88,0	10,0	2,1	100		total	85,8	9,9	4,3	100

**Figure 23: Ease of monitoring and regulating the room temperature, by site (crosstab, percent of total)**

(imp. = it's impossible)

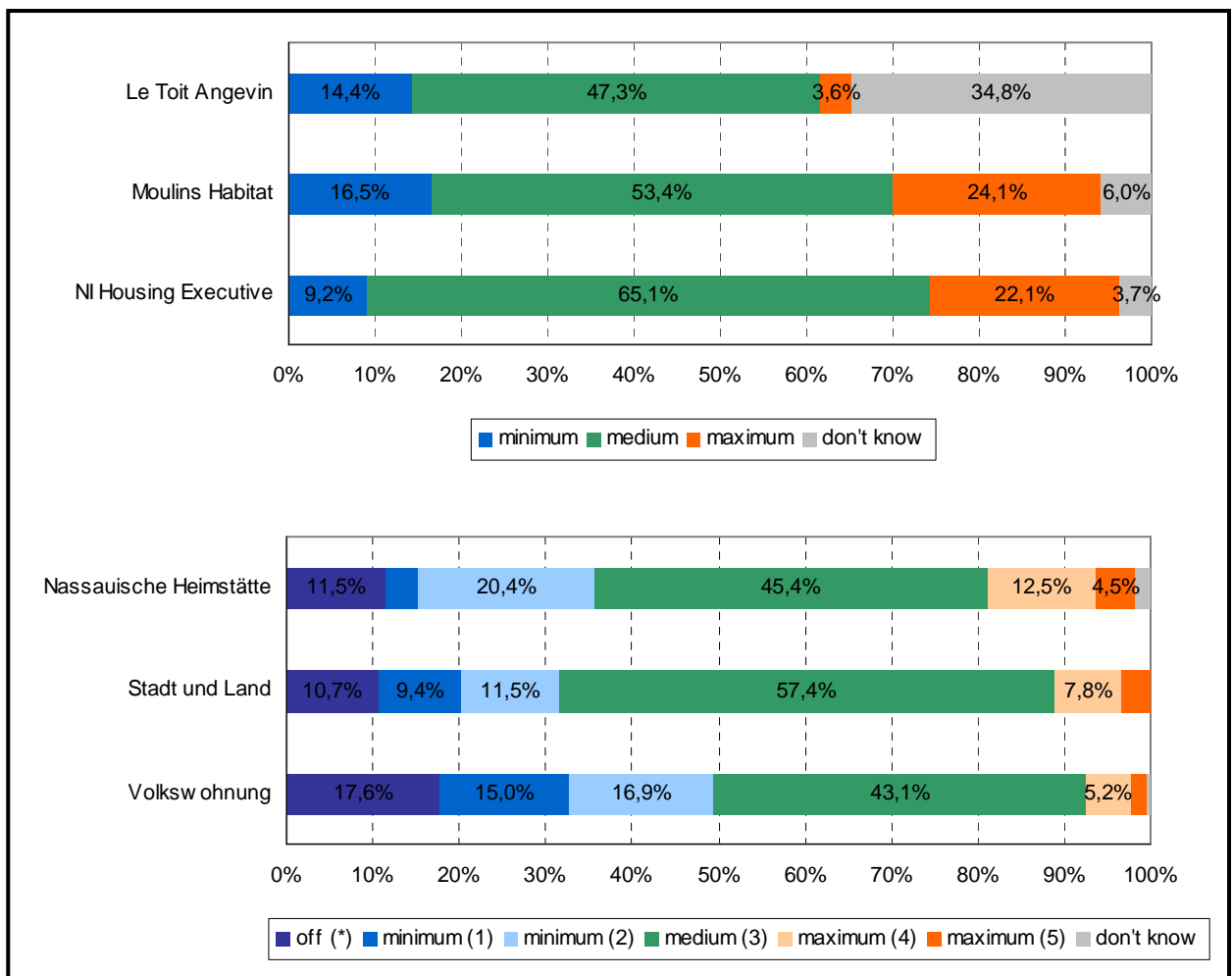
With the exception of Moulins Habitat most tenants can adjust the setting of their heating/radiators by themselves.



**Figure 24: Possibility of adjusting the setting of the heating/radiators by oneself, by site**

(Question: Can you adjust the setting of your heating/radiators by yourself?)

Usually the tenants use a medial heating setting.



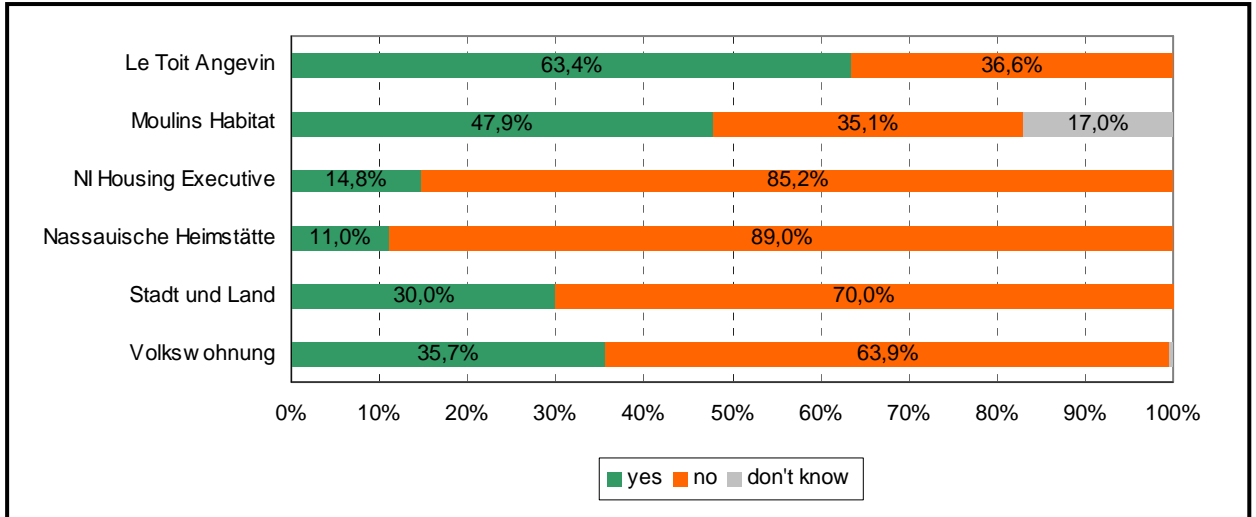
**Figure 25: Usual level of the heating setting<sup>8</sup>, by site**

(Question: To what level do you usually set the heating?)

<sup>8</sup> according to German sites: data concern the living room in the daytime  
 SAVE@WORK4Homes: Deliverable 2.1 Version 1a (October 2007)

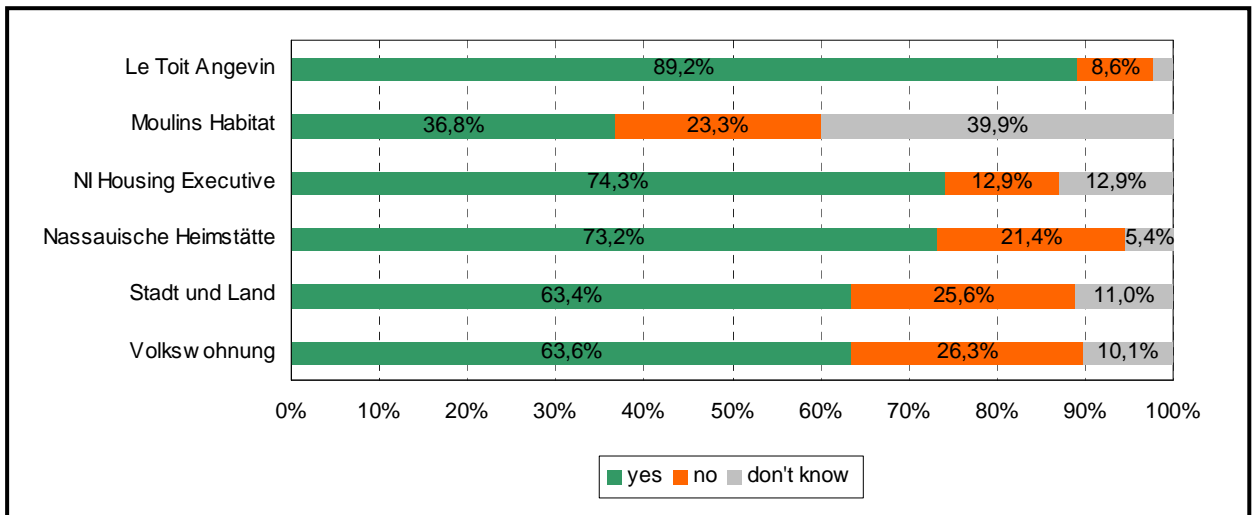


As shown in Figures 26 and 27 the availability of controlled mechanical ventilation systems and the satisfaction with it vary from site to site. Except Moulins Habitat most tenants who have a controlled mechanical ventilation system feel comfortable with it.



**Figure 26: Availability of a controlled mechanical ventilation system (CMV), by site**

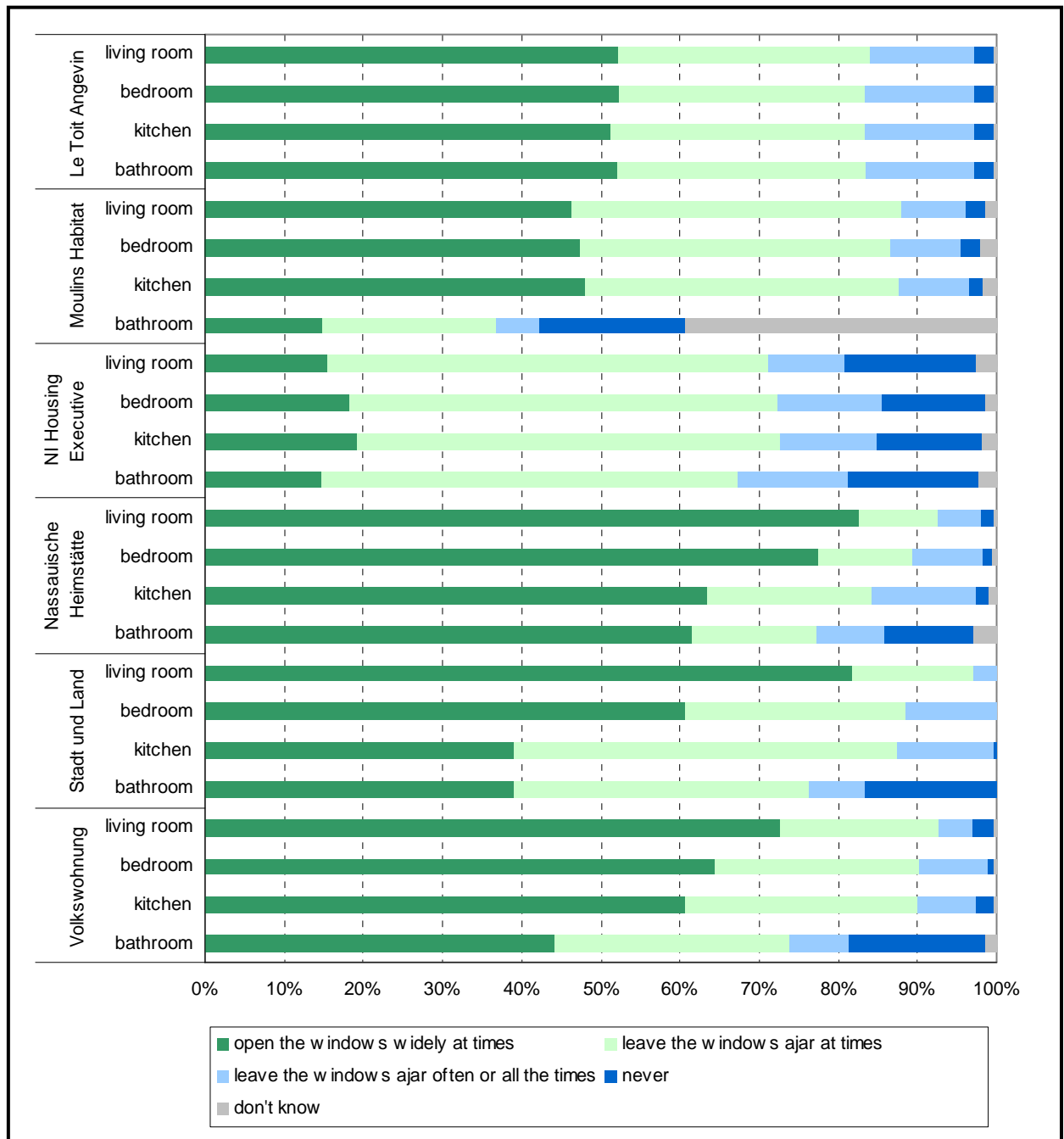
(Question: Do you have a controlled mechanical ventilation system (CMV)?)



**Figure 27: Satisfaction with the CMV, by site**

(Question: Is your ventilation system comfortable?)

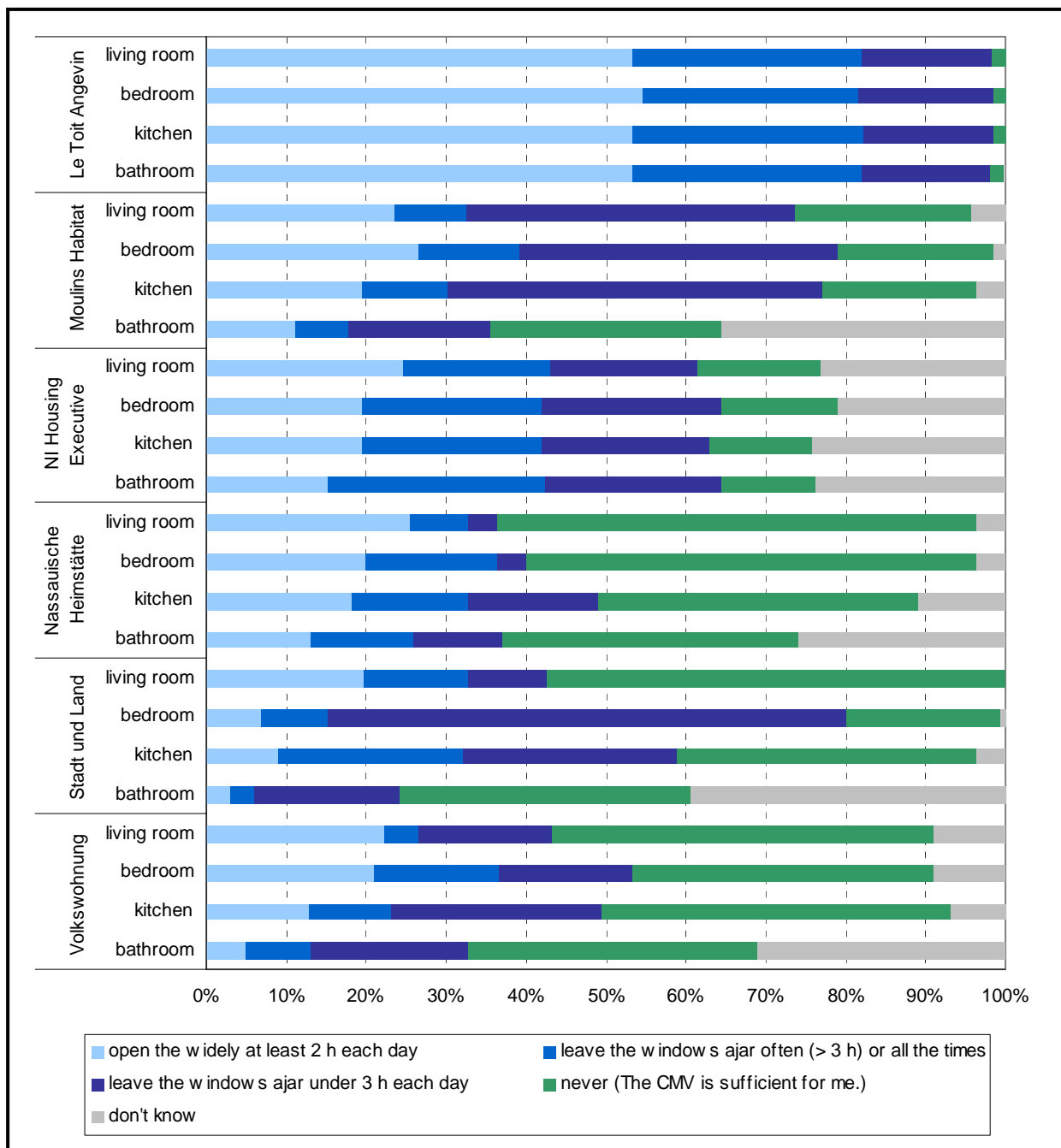
The ventilation behaviour in winter or on colder days differs as well. Especially in Germany it depends on the usage of the several rooms. Most respondents without controlled mechanical ventilation systems ventilate their homes by opening the windows widely at times or leaving the windows ajar at times.



**Figure 28: Ventilation behaviour in winter or on colder days (flats/houses without CMV), by site**

(Question: If you don't have a ventilation system: How do you usually ventilate your home in winter time or on colder days?)

In houses or flats with CMV often the controlled mechanical ventilation system adopt the ventilation habits of the tenants.



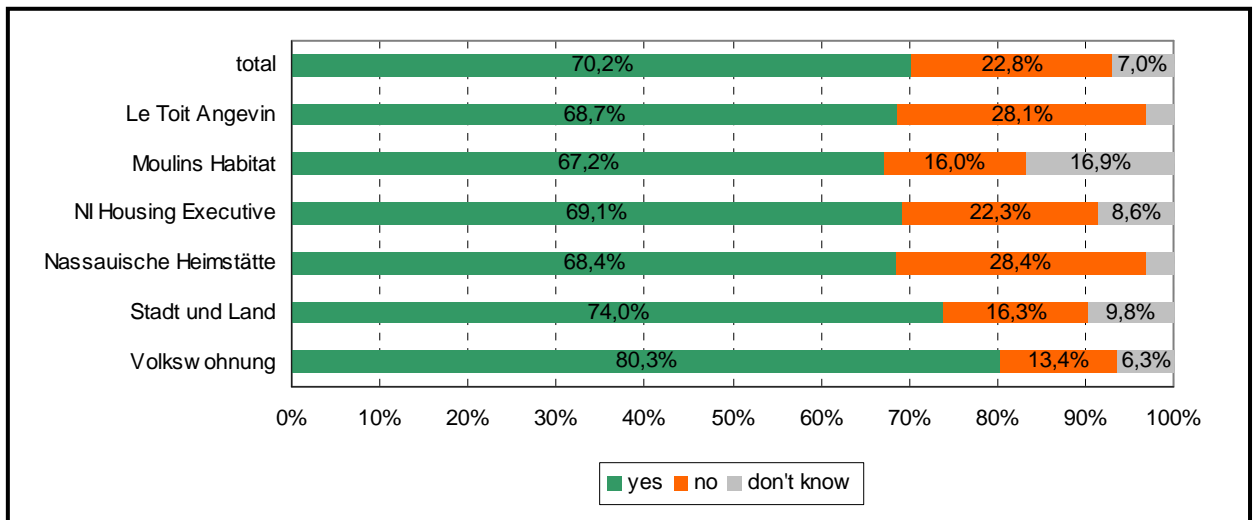
**Figure 29: Ventilation behaviour in winter or on colder days (flats/houses with CMV), by site**

(Question: I you have a controlled mechanical ventilation system (CMV): How do you usually ventilate your home in winter time or on colder days?)

### 3.5 Interest in Energy Awareness Services

One of the main information sources concerning energy saving are governmental organizations like French ADEME, Northern Irish Energy Saving Trust or German UBA. 59 % of the tenants know them, only 44 % have already used their offer of information. The best information tenants get from TV (77 %), newspapers (62 %) and brochures (50 %). Based on this information, only 11 % of the respondents feel very well informed about how to save energy, by contrast 25 % feel fairly badly or badly informed.

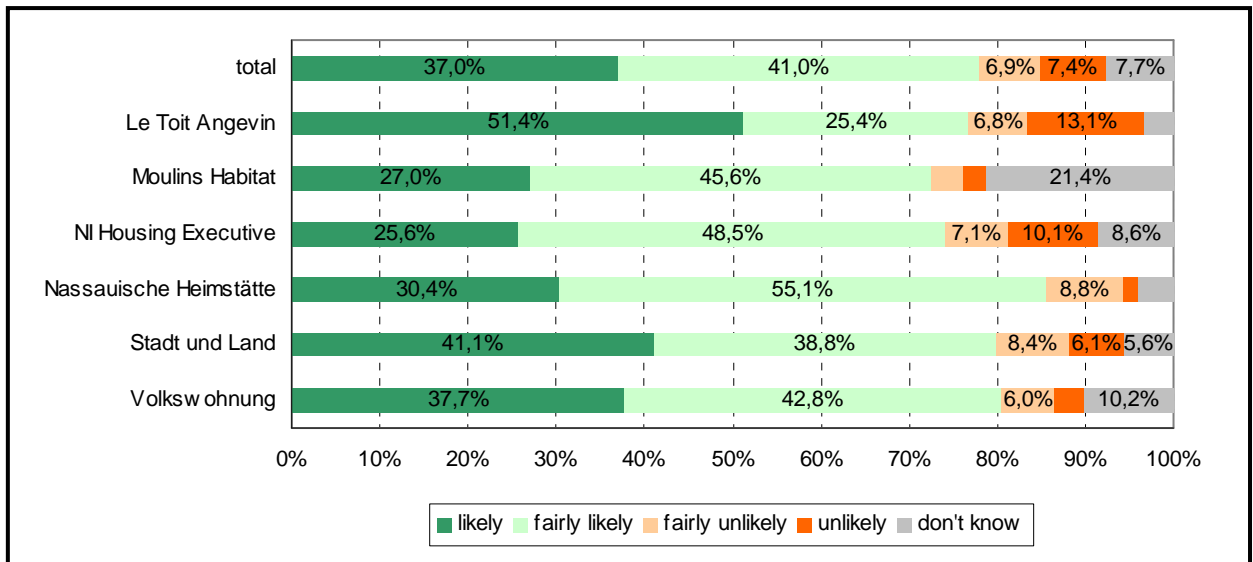
Most of the tenants at all sites are interested in a service which gives them an exact overview of their home's current consumption of heating and energy and hints about how to save energy. The younger the respondents are, the more they are interested in such information ( $p < 0.01$ ).



**Figure 30: Interest in an information service offered by the housing provider**

(Question: If your housing provider offered a service which gives you an exact overview of your home's current consumption of heating and energy and hints about how to save energy, would you be interested?)

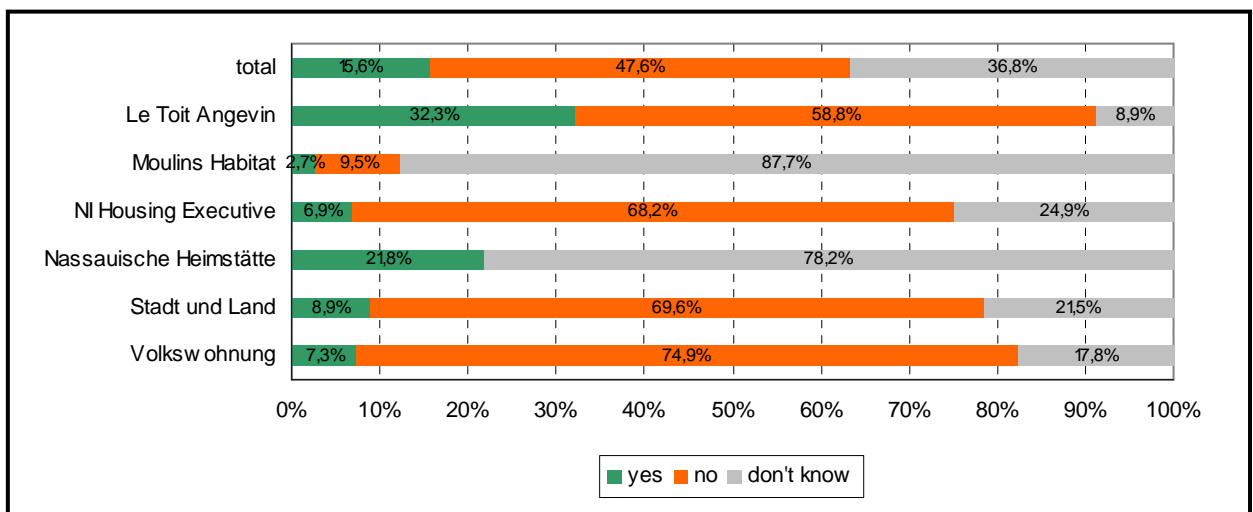
Most of all declared that they want to use such a service regularly, younger tenants more often than elderly.



**Figure 31: Likelihood of regular usage of such a service**

(Question: Do you think you would be likely or unlikely to regularly use such a service?)

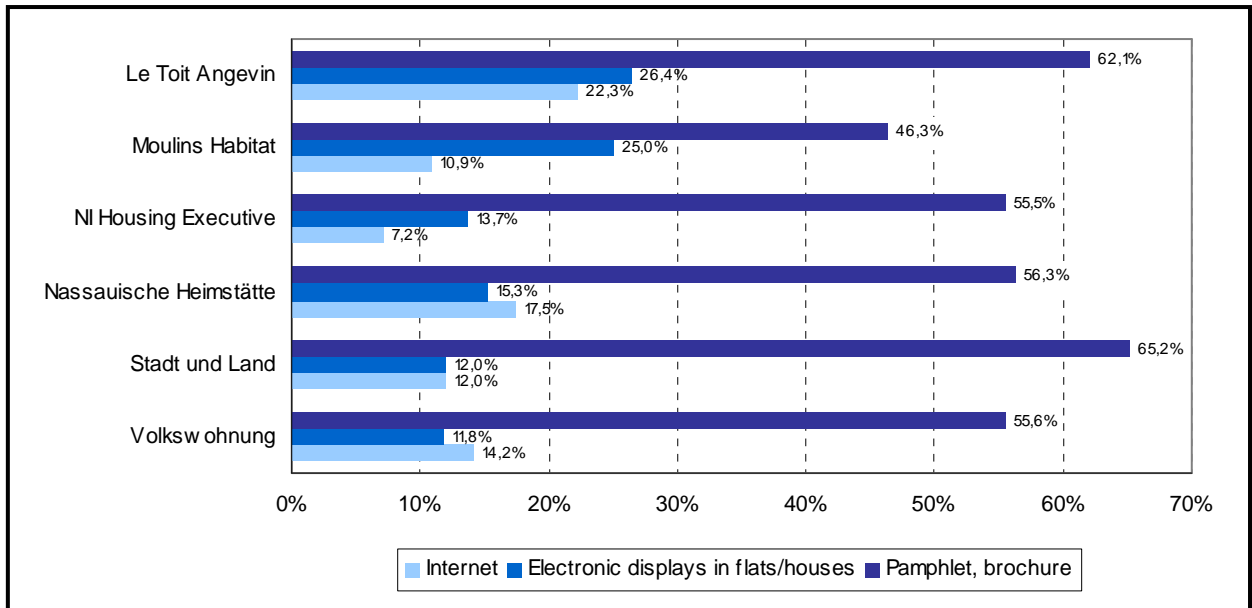
In general they don't want to pay for such a service.



**Figure 32: Willingness to pay for such a service**

(Question: Would you be willing to pay for such a service?)

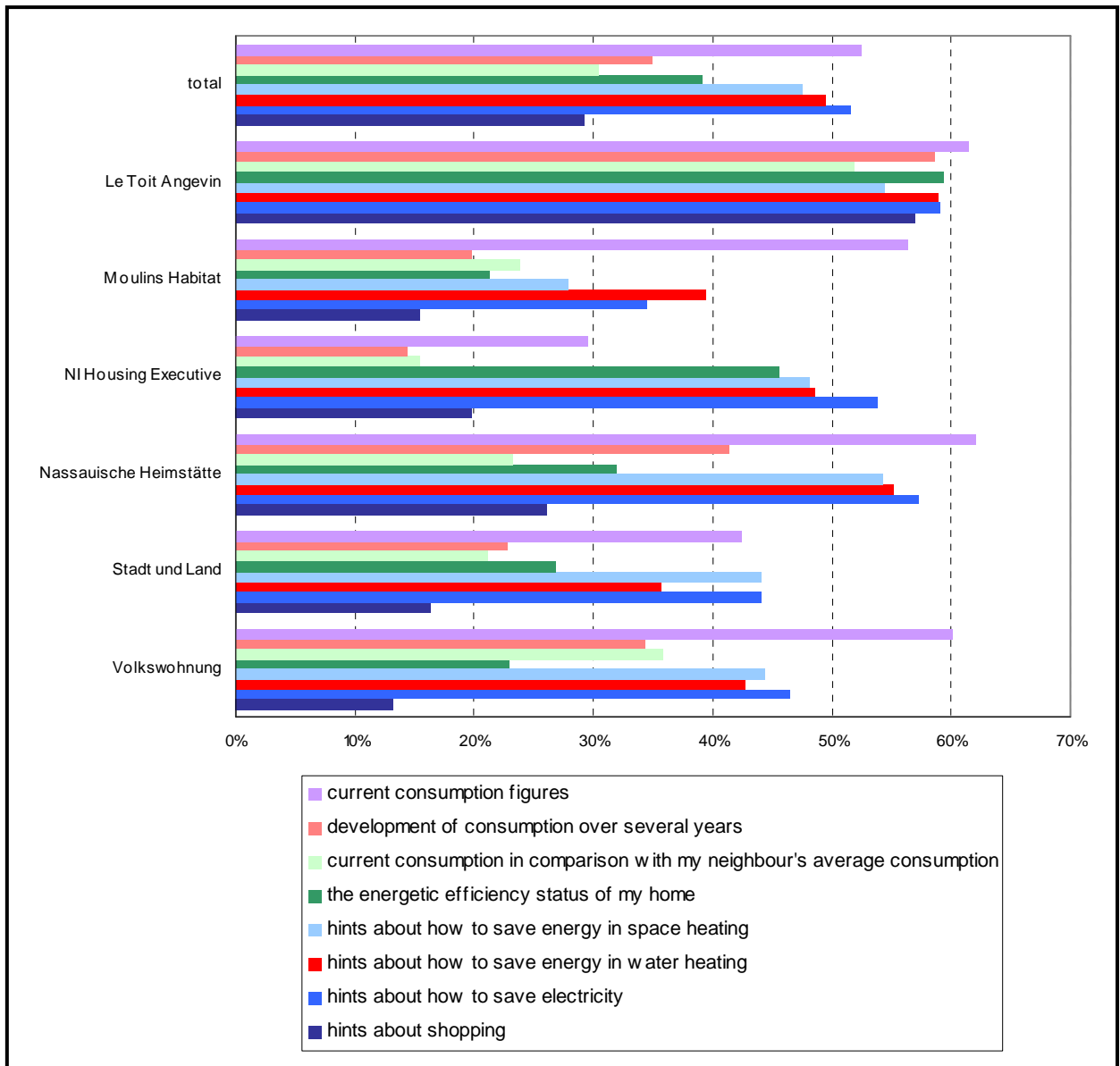
The preferred channels to get this information are pamphlets and brochures. The internet rates comparatively high in Le Toit Angevin and Nassauische Heimstätte.



**Figure 33: Preferred channel, by site**

(Question: Which channel would you prefer to use to get this information? [Multiple answers possible])

As shown in figure 34 the kind of information tenants are mostly interested in varies from site to site. Overall they are mostly interested in current consumption figures and hints about how to save electricity, water heating and space heating.



**Figure 34: Kind of information and data tenants are interested in, by site**

(Question: What kind of information and data would you most be interested in? [Multiple answers possible])

## 4 Conclusion

Research into tenant energy consumption behaviour, attitudes and information requirements is essential for selecting options in respect of service components, their design and **SAVE4Homes** Energy Awareness specifications. Therefore this broad survey collected quantitative data from more than 2.600 tenants of social housing in three European countries about issues relevant for energy saving and interests in information how to optimise this. The survey aimed to identify gaps in knowledge and typical "wrongdoing" in energy consumption and to forecast the acceptability of the planned energy awareness services.

The most important results are:

- Most respondent tenants of social housing are 60 and more years old. In general they live on low income levels and/or social security benefits. Often they have no private access to a computer and no access to internet.
- Most tenants are worried about the climate change and feel themselves as being aware of environmental issues. Saving money motivates tenants more to save energy than protecting the environment.
- Most tenants value their own energy consumption as medium. On the other hand the collected data show a set of possibilities to tap the full potential of energy saving - for example improvements in ventilation and heating behaviour. Primarily in France has to be considered that a lot of tenants cannot adjust the setting of their heating/radiators by themselves.
- Although most tenants feel well informed about environmental issues in general, they otherwise describe gaps in knowledge about the consumption of energy in their flats/houses and about the possibilities of saving energy there. Up to now they get information from TV, newspapers and brochures, but often they value these channels as insufficient in order to satisfy their information need.
- Most tenants are interested in a service which gives an exact overview of their energy consumption and hints about how to save energy. Tenants are mostly interested in current consumption figures and information about how to save electricity, water heating and space heating. They prefer pamphlets.
- Most tenants want to use it regularly, but they don't want to pay for that.



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