POTENTIAL STUDY

Study of the potential for roof-top extension retrofit for energy efficiency in social housing.

PART I/II

A SuRE-Fit Report of Deliverable 4

Project	Sustainable Roof Extension Retrofit for High-Rise Social Housing in Europe (SuRE-Fit)
Stage	WP II
Report by	W/E consultants (WPII leader)
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APPENDIX A - Response and Input Questionnaire - Potential Study

1. INTRODUCTION

1.1 General introduction

This report is the first part out of in total two reports produced for Workpackage 2. This part, part I/II, displays the results of the potential study for SuRE-Fit, deliverable 4. The deliverable aims to define the potential in all 25 EU countries.

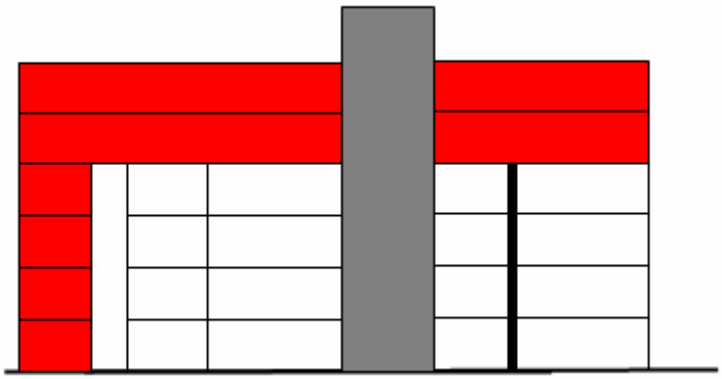
1.3 Target group

The results of this deliverable can be useful for both municipalities and other governmental bodies as well as for housing associations and other housing owners. Having insight in the actual number of potential buildings for SuRE-Fit and the benefits that can be achieved stimulates the investments in suchlike projects.

1.4 Definitions

The full title of SuRE-Fit is Sustainable Roof Extension Retrofit for High-Rise Social Housing in Europe. For this research the term *high-rise* is specified as following: "Multi-family buildings with ≤4 storeys" (A ground floor with at max 4 additional floors).

The following picture shows what additions are considered as roof-top extension:



2. DELIVERABLE 4 – Potential Study

2.1 Introduction

Deliverable 4 contains the potential study that is made for SuRE-Fit. Aim of the study is to define the potential of SuRE-Fit for all EU25 countries. For all 9 countries represented in the consortium the available information for this deliverable is reasonably extensive. Still, more comprehensive results may appear during this project. Therefore it must be mentioned that figures may change gradually. For the other countries, on the contrary, no further specifications are expected. It means that results within this group of countries are definite.

Chapter 2.2 explains how the potential study was approached on the basis of an example. Next, chapter 2.3 comprises the results.

2.2 Approach – An example (NL)

A questionnaire developed by W/E consultant, leader of Workpackage 2, was distributed among all consortium members in March 2007. Consortium members were asked to give a description of the housing market in their countries. Aim was to define the background of SuRE-Fit; Is there a market for sustainable refurbishment? What financial or legal aspects play a role? And also: what building types are suitable? Shortly after the 2nd SuRE-Fit meeting[1] members had the opportunity to review the potential study (especially the assumption that were made) and suggest chances.

The study is divided into two parts. The first section has a quantitative character: it is about studying literature about (national) housing markets. It gives insight in the size of the market, common dwelling types and the diversity of the market. Figures about the condition (age) of the stock are also available in the literature. Collecting and using those numbers results in a maximum, *theoretical potential* for SuRE-Fit for each country.

However, not all buildings derived from this potential are automatically suitable. Several factors may reduce the maximum number. For example: roof topping will not be feasible if the building is located in an unattractive area where there is no demand for housing at all. Furthermore, legal aspects, like limitations regarding the addition of dwellings in certain areas, may also influence the amount of potential buildings. These limitations, or conditions, form the maximum *practical potential*. It is a very realistic number about the amount of dwellings that roof-top retrofit can be applied to.

The picture below shows the division into the quantitative number and the limiting factors:

Figure 1: Approach potential study

[1] Prague June 2007, hosted by STU-k

As an example of how the potential can be found for each country the situation of the Netherlands is given. The data are based on figures from 2005, the report Sustainanble Refurbishment of High-Rise in EU [VROM/PRC, 2005]. This report has been the main source for most part of the potential study.

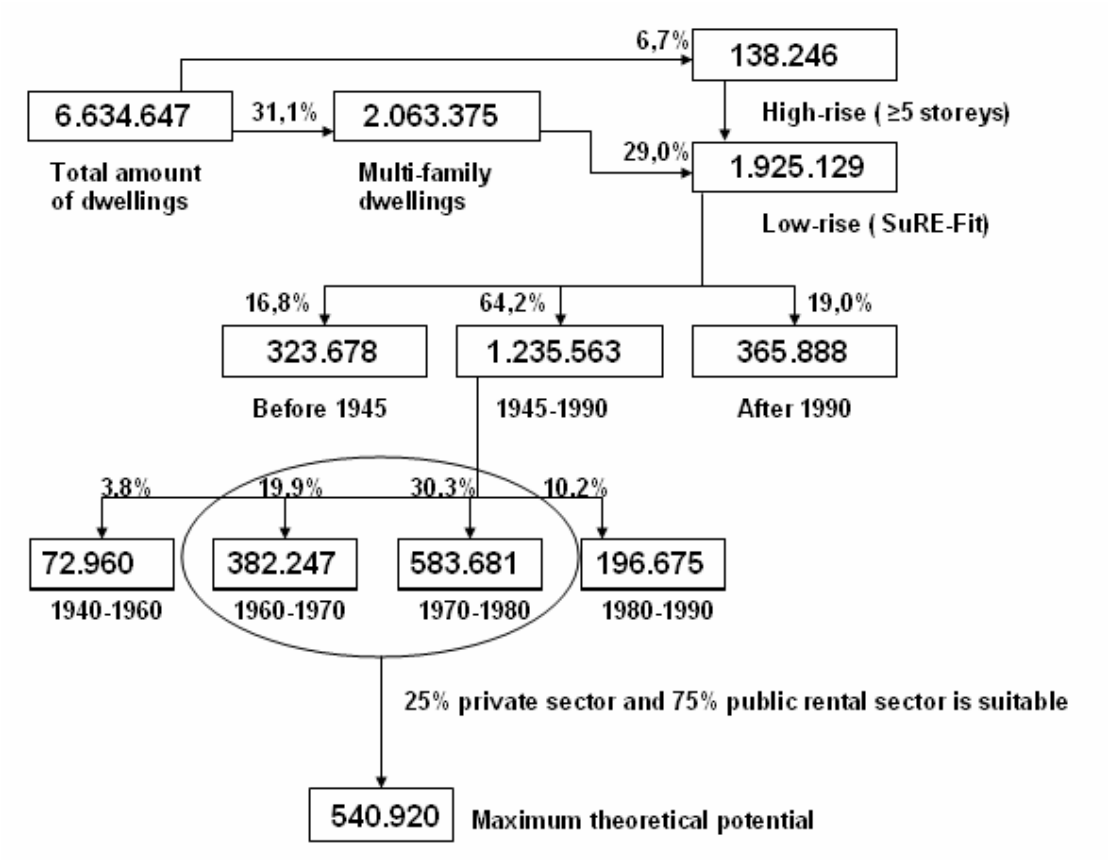


Figure 2: Quantitative approach [Source: Sustainanble Refurbishment of High-Rise in EU, VROM/PRC, 2005]

The total amount of multi-family buildings is split into *high-rise* (≥5 storeys) and *low-rise* (≤4 storeys). This last group is suitable for SuRE-Fit considering the definition[2]. A number of 64,2% of all low-rise buildings with 4 or less storeys has been built between 1945 and 1990. We assume that buildings built before 1960 won't be part of the potential since they are too old to be able to function at least another 40 years. Besides that, some of those old buildings have been giving the monument-status which means adaptations on the roof would never be accepted. Even so buildings built after 1980 do not belong to the potential. Buildings from this period are just too young and it would be economically and often also technically unwise to retrofit these buildings.

Now some other factors start playing a role. Ownership, for example, is an important feature of the housing stock too. SuRE-Fit is meant to serve low-cost social housing. In the Netherlands nearly 50% of the housing stock is situated in the rental market. For multi-family low-rise dwellings this number is even more than 60%. For the determination of the maximum theoretical potential we made the following assumption that includes not only the social housing sector but also other rental and private markets: *despite differences in ownership of dwellings between all countries, 25% of all low-rise buildings in the private market and 75% of low-rise dwellings in the rental market belong to the potential.*

What is left after expunging those factors is the maximum theoretical potential. This number will be given for all countries. In the example of the Netherlands the theoretical potential is 540920 buildings.

[2] In chapter 1.4 the definition of the potential building type for SuRE-Fit was stated as: A multi-family building with ≤4 storeys.

Before finding the estimated reduction of energy when SuRE-Fit would be applied to this amount of dwellings the following assumptions have been made:

- The demand for energy of existing dwellings built between 1960-1980 is about 250kWh/m^2 per year. However, most of the buildings have been renovated before. The renovation works consisted of replacement of windows, addition of thermal insulation etcetera. Through various levels of renovation improvements in the energetic performance of 25% up to 80% can be realised. For the Netherlands we assume that the potential stock is improved with 25-40% which leads to an average demand for energy of 170 kWh/m^2 per year.
- The average surface of both existing as well as new dwellings: 75m^2 [SenterNovem 2006].
- Average consumption of new dwellings according the Dutch Building Code: approximately 100 kWh/m^2 per year.
- After retrofitting the energy consumption of the existing dwellings can be decreased by 50%.
- The new dwellings are energy neutral.
- An amount of 1/3 of new dwellings will be added.
- The dwellings use natural gas for heating and hot domestic water with an emission of 0,056 kg CO_2 per MJ.

	# dwellings		Tot. Current Demand [GWh]	Tot. Current Demand [PJ]	Demand after retrofit [GWh]	Demand after retrofit [PJ]
	Theoretical	Practical	Max	Max.	Max.	Max.
Max potential	540920		6897	24,8	3448	12,4
Addition	180307		1352	4,9	0	0
Total	721226		8249	29,7	3448	12,4

	Current Emiss. [Mton CO2]	After SuRE-Fit [Mton CO2]
	Max.	Max.
Max potential	1,39	0,70
Addition	0,27	0,00
Total	1,66	0,70

A maximum reduction of 0,70 Mton CO_2 is 5,4 % of the Kyoto target for the Netherlands. (Emission of 0,056 kg CO_2 per MJ natural gas; Kyoto target reduction of 8% in relation to the emission of 1990 (which was 218,9 Mton CO_2)).

2.3 Starting points

The example given in chapter 2.2 was about the situation for the Netherlands. In some countries buildings with ≤4 storeys do not exist or can hardly be found. In this case the potential may be formed by another building type, very common for that specific country.

Realizing the fact that it is not common to use natural gas for heating and the production of hot domestic water is all countries it is hard to define what saving on emission of CO_2 can be achieved. Therefore, this data will not be given for all countries.

Several countries deal with a great amount of unoccupied buildings. Estimations can give insight in how much dwellings that are and what influence that has on the potential. Next to that, in some countries, regions, cities or even districts there may be an extremely high demand for housing that makes roof topping maybe suitable for non-housing buildings too. Estimations can only be made by people with extensive knowledge of the housing market in a country. As mentioned before, we hope to expand this kind of information during this project.

Assumptions for the determination of the potential for all countries were similar to those of the example of the Netherlands. However, consortium members were asked to check those propositions and refine them if necessary.

- The energy demand of existing dwellings built between 1960-1980 is taken as 170 kWh/m^2 per year for *all* countries.
- The average surface of both existing as well as new dwellings: 75m^2. An exception is made for Eastern European countries and countries from Central Europe and North-East Europe[3]; they have a supposed surface of 60m^2.
- Average consumption of new dwellings is 100 kWh/m^2 per year.
- After retrofitting the energy consumption of the existing dwellings is decreased with 50%.
- The new dwellings are energy neutral.
- An amount of 1/3 of new dwellings will be added.

[3] Those countries include: Czech Republic, Hungary, Poland, Slovakia, Slovenia, Estonia, Latvia and Lithuania.

2.4 Results

AUSTRIA

Profile

Population	Dwell/1000 inhabitants	Total Dwellings	Multi-family	High-rise	Low-rise
			52,1%	No data	No data
8032926	406	3261368	1699173		

Building period

	Total		Multi-family		Low-rise	
	%	Abs	%	Abs	%	Abs
Built >1990	15,2	495731	19,5	331339		
Built '45-'90	57,2	1865513	53,7	912456		
Built <1945	27,6	900143	26,8	455378		

	Total		Multi-family		Low-rise	
	%	Abs	%	Abs	%	Abs
Built '45-'60	12,4	404412	12,2	207299		
Built '60-'70	15,5	505515	16,7	**283762**		
Built '70-'80	16,3	531606	14,9	**253177**		
Built '80-'90	13	423980	9,9	168218		

Ownership

	Total		Multi-family		Low-rise	
	%	Abs	%	Abs	%	Abs
Public rental	9,2	300048	17,3	293957		
Cooperative	13,4	437026	26,6	451980		
Private rental	17,8	580527	25,3	429891		
Owner occupied	56,8	1852467	26,2	445183		
Other	2,8	91319	4,6	78162		

Potential

	# dwellings		Tot. Current Demand [GWh]	Tot. Current Demand [PJ]	Demand after retrofit [GWh]	Demand after retrofit [PJ]
	Theoretical	Practical	Max	Max.	Max.	Max.
Max potential	211554		2697	9,7	1349	4,9
Addition	70518		529	1,9	0	0
Total	282072		3226	11,6	1349	4,9

Saved by SuRE-Fit	1878	GWh
	6,8	PJ

BELGIUM

Profile

Population	Dwell/1000 inhabitants	Tot. Dwellings	Multi-family	High-rise	Low-rise
			25,1%	4,3%	
10372469	395	4097125	1028378	44220	984158

Building period

	Total		High-rise		Low-rise	
	%	Abs	%	Abs	%	Abs
Built >1990	22,2	909562	No data		No data	
Built '45-'90	45,3	1855998				
Built <1945	32,5	1331566				

	Total		High-rise		Low-rise	
	%	Abs	%	Abs	%	Abs
Built '45-'60	**29,8**	1220943				
Built '60-'70	15,6	639152				
Built '70-'80						
Built '80-'90						

Ownership

	Total		High-rise		Low-rise	
	%	Abs	%	Abs	%	Abs
Public rental	7	286799				
Cooperative	0	0				
Private rental	22,4	917756				
Owner occupied	68	2786045				
Other	2,6	106525				

Potential

	# dwellings		Tot. Current Demand [GWh]	Tot. Current Demand [PJ]	Demand after retrofit [GWh]	Demand after retrofit [PJ]
	Theoretical	Practical	Max	Max.	Max.	Max.
Max potential	87397		1114	4,0	557	2,0
Addition	29132		218	0,8	0	0,0
Total	116530		1333	5	557	2,0

Saved by SuRE-Fit	776	GWh
	2,8	PJ

FRANCE

Profile

Population	Dwell/1000 inhabitants	Tot. Dwellings	Multi-family	High-rise	Low-rise
			43,3%	15,9%	
58626000	489	28668114	12413293	4558230	7855063

Building period

	MF		High-rise		Low-rise	
	%	Abs	%	Abs	%	Abs
Built >1990	8	993063	No data		Extrapolated	628405
Built '45-'90	53	6579045			from all	4163184
Built <1945	39	4841184			MF buildings	3063475

	MF		High-rise		Low-rise	
	%	Abs	%	Abs	%	Abs
Built '45-'60	13,1	0				1029013
Built '60-'70	16,3	0				**1280375**
Built '70-'80	18	0				**1413911**
Built '80-'90	17,7	0				1390346
					Extrapolated	

Ownership

	Total		Multi-family		Low-rise	
	%	Abs	%	Abs	%	Abs
Public rental	17,2	4930915,61	**33,5**	4158453		
Cooperative	0	0	0	0		
Private rental	20,7	5934299,6	**36,8**	4568092		
Owner occupied	56	16054143,8	25	3103323		
Other	6,1	1748754,95	4,7	583425		

Potential

	# dwellings		Tot. Current Demand [GWh]	Tot. Current Demand [PJ]	Demand after retrofit [GWh]	Demand after retrofit [PJ]
	Theoretical	Practical	Max	Max.	Max.	Max.
Max potential	987456		12590	45,3	6295	22,7
Addition	329152		2469	8,9	0	0
Total	1316608		15059	54,2	6295	22,7

Saved by SuRE-Fit	8764	GWh
	31,5	PJ

GERMANY

Profile

Population	Dwell/1000 inhabitants	Tot. Dwellings	Multi-family	High-rise	Low-rise
			53,9%	6%	
82537000	469	38709853	20864611	1251877	19612734

Building period

	Multi-family		High-rise		Low-rise	
	%	Abs	%	Abs	%	Abs
Built >1990	10	2086461	7	87631	10,2	1998830
Built '45-'90	64,6	13478539	88	1101651	63,1	**12376887**
Built <1945	25,4	5299611	5	62594	26,7	5237017

	Multi-family		High-rise		Low-rise	
	%	Abs	%	Abs	%	Abs
Built '45-'60	50,9	10620087	68,4	856284	49,1	**9620217**
Built '60-'70	10,6	2211649	16,5	206560	11,8	2320666
Built '70-'80	3,1	646803	3,1	38808	2,2	436004
Built '80-'90						

Ownership

	Total stock			Extrapolated
	%	Abs		
Public rental	?			36,5
Cooperative	?			
Private rental	?			
Owner occupied	42,5	16451688	Social Rent (% of all residential buildings > 3storeys)	
Other	57,4	**22219456**		

Potential

	# dwellings		Tot. Current Demand [GWh]	Tot. Current Demand [PJ]	Demand after retrofit [GWh]	Demand after retrofit [PJ]
	Theoretical	Practical	Max	Max.	Max.	Max.
Max potential	5163651		65837	237,0	32918	118,5
Addition	1721217		12909	46,5	0	0
Total	6884869		78746	283,5	32918	118,5

Saved by SuRE-Fit	45827	GWh
	165,0	PJ

LUXEMBOURG

Profile

Population	Dwell/1000 inhabitants	Total Dwellings	Multi-family	High-rise	Low-rise
			29,1%	16,2%	
439565	391	171870	50014	8102	41912

Building period

	Multi-Family		High-rise		Low-rise	
	%	Abs	%	Abs	%	Abs
Built >1990	30,5	15254	32,8	2658	30,1	12597
Built '45-'90	49,1	24557	62,2	5040	46,6	19517
Built <1945	20,1	10053	1,6	130	23,7	9923

	Multi-Family		High-rise		Low-rise	
	%	Abs	%	Abs	%	Abs
Built '45-'60	7,5	3751	9,8	794	7,3	3075
Built '60-'70	9,6	4801	8,2	664	6,1	**2573**
Built '70-'80	20,9	10453	29,5	2390	22,1	**9257**
Built '80-'90	11,1	5552	14,7	1191	11,0	4613
					Extrapolated	

Ownership

	Multi-family		High-rise		Low-rise	
	%	Abs	%	Abs	%	Abs
Public rental	57,6	28808	No data			
Cooperative	1,3	650				
Private rental	0	0				
Owner occupied	36,4	18205				
Other	4,7	2351				

Potential

	# dwellings		Tot. Current Demand [GWh]	Tot. Current Demand [PJ]	Demand after retrofit [GWh]	Demand after retrofit [PJ]
	Theoretical	Practical	Max	Max.	Max.	Max.
Max potential	6719		85,7	0,31	42,83	0,15
Addition	2240		16,8	0,06	0	0
Total	8959		102,5	0,37	42,83	0,15

Saved by SuRE-Fit	60	GWh
	0,2	PJ

THE NETHERLANDS

Profile

Population	Dwell/1000 inhabitants	Total Dwellings	Multi-family	High-rise	Low-rise
			31,1%	6,7%	
15987100	415	6634647	2063375	138246	1925129

Building period

	Multi-Family %	Abs	High-rise %	Abs	Low-rise %	Abs
Built >1990	17	350774	19,6	27096	16,8	323678
Built '45-'90	65,1	1343257	77,9	107694	64,2	1235563
Built <1945	17,9	369344	2,5	3456	19,0	365888

	Multi-Family %	Abs	High-rise %	Abs	Low-rise %	Abs
Built '45-'60	13,1	270302	4,6	6359	3,8	72960
Built '60-'70	16,3	336330	24,1	33317	19,9	**382247**
Built '70-'80	18	371408	36,8	50875	30,3	**583681**
Built '80-'90	17,7	365217	12,4	17143	10,2	196675
					Extrapolated	

Ownership

	Multi-family %	Abs	High-rise %	Abs	Low-rise %	Abs
Public rental	62	1279293	62,2	85989	62,0	1193303
Cooperative	0	0	0	0	0,0	0
Private rental	17,3	356964	15,8	21843	17,4	335121
Owner occupied	20,7	427119	22	30414	20,6	396704
Other	0	0	0	0	0,0	0

Potential

	# dwellings Theoretical	Practical	Tot. Current Demand [GWh] Max	Tot. Current Demand [PJ] Max.	Demand after retrofit [GWh] Max.	Demand after retrofit [PJ] Max.
Max potential	540920		6897	24,8	3448	12,4
Addition	180307		1352	4,9	0	0
Total	721226		8249	29,7	3448	12,4

	Current Emiss. [Mton CO2] Max.	After SuRE-Fit [Mton CO2] Max.
Max potential	1,39	0,70
Addition	0,27	0,00
Total	1,66	0,70

Saved by SuRE-Fit	4801	GWh
	17,3	PJ
	0,97	Mton CO2

DENMARK

Profile

Population	Dwell/1000 inhabitants	Total Dwellings	Multi-family	High-rise	Low-rise
			38,8%	10,4%	
5382507	472	2540543	985731	102516	883215

Building period

	Multi-Family %	Abs	High-rise %	Abs	Low-rise %	Abs
Built >1990	6,4	63087	3,2	3281	6,8	59806
Built '45-'90	48,1	474137	30,1	30857	50,2	443279
Built <1945	46,5	458365	66,7	68378	44,2	389987

	Multi-Family %	Abs	High-rise %	Abs	Low-rise %	Abs
Built '45-'60	15	147860	9,2	9431	15,3	135487
Built '60-'70	14,3	140960	11,8	12097	19,7	**173777**
Built '70-'80	12	118288	7,4	7586	12,3	**108979**
Built '80-'90	5,9	58158	1,6	1640	2,7	23563
			30		Extrapolated	

Ownership

	Multi-family %	Abs	High-rise %	Abs	Low-rise %	Abs
Public rental	63,7	627911	23,7	24296	68,3	603614
Cooperative	5,1	50272	30,6	31370	2,1	18902
Private rental	6,3	62101	33,5	34343	3,1	27758
Owner occupied	24	236575	12	12302	25,4	224274
Other	1	9857	0,1	103	1,1	9755

Potential

	# dwellings Theoretical	Practical	Tot. Current Demand [GWh] Max	Tot. Current Demand [PJ] Max.	Demand after retrofit [GWh] Max.	Demand after retrofit [PJ] Max.
Max potential	110982		1415	5,1	708	2,5
Addition	36994		277	1,0	0	0,0
Total	147976		1692	6,1	708	2,5

Saved by SuRE-Fit	985	GWh
	3,5	PJ

FINLAND

Profile

Population	Dwell/1000 inhabitants	Total Dwellings	Multi-family	High-rise	Low-rise
			58%	22%	44,928
5106299	499	2548043	1467673	322888	1144785

Building period

	MF		High-rise		Low-rise	
	%	Abs	%	Abs	%	Abs
Built >1990	17,6	258310	18,5	59734	17,3	198576
Built '45-'90	75,9	1113964	73,3	236677	76,6	877287
Built <1945	6,5	95399	8,2	26477	6,0	68922

	MF		High-rise		Low-rise	
	%	Abs	%	Abs	%	Abs
Built '45-'60	9,5	139429	11,6	37455	12,1	138834
Built '60-'70	17	249504	19,3	62317	20,2	**230991**
Built '70-'80	28,7	421222	29,6	95575	30,9	**354266**
Built '80-'90	12,7	186394	12,7	41007	13,3	151999
					Extrapolated	

Ownership

	Multi-family		High-rise		Low-rise	
	%	Abs	%	Abs	%	Abs
Public rental	62	909957	62,2	200836	61,9	709121
Cooperative	0	0	0	0	0,0	0
Private rental	17,3	253907	15,8	51016	17,7	202891
Owner occupied	20,7	303808	22	71035	20,3	232773
Other	0	0	0	0	0,0	0

Potential

	# dwellings		Tot. Current Demand [GWh]	Tot. Current Demand [PJ]	Demand after retrofit [GWh]	Demand after retrofit [PJ]
	Theoretical	Practical	Max	Max.	Max.	Max.
Max potential	327744		4179	15,0	2089	7,5
Addition	109248		819	2,9	0	0,0
Total	436992		4998	18,0	2089	7,5

Saved by SuRE-Fit	2909	GWh
	10,5	PJ

SWEDEN

Profile

Population	Dwell/1000 inhabitants	Total Dwellings	Multi-family	High-rise	Low-rise
			52%	No data	
8909128	484	4312018	2237937		

Building period

	Total stock		*Multi-family*		Low-rise	
	%	Abs	%	Abs	%	Abs
Built >1990	8	344961	8	179035	No data	
Built '45-'90	63	2716571	56	1253245		
Built <1945	29	1250485	36	805657		

	Total stock		*Multi-family*		Low-rise	
	%	Abs	%	Abs	%	Abs
Built '45-'60	16	689923	11	246173		
Built '60-'70	20	862404	15	**335691**		
Built '70-'80	18	776163	22	**492346**		
Built '80-'90	8	344961	8	179035		

Ownership

	Total stock		*Multi-family*		Low-rise	
	%	Abs	%	Abs	%	Abs
Public rental	29	1250485	**49**	1096589		
Cooperative	16	689923	**27**	604243		
Private rental	13	560562	**22**	492346		
Owner occupied	42	1811048	2	44759		
Other	0	0	0	0		

Potential

	# dwellings		Tot. Current Demand [GWh]	Tot. Current Demand [PJ]	Demand after retrofit [GWh]	Demand after retrofit [PJ]
	Theoretical	Practical	Max	Max.	Max.	Max.
Max potential	314654		4012	14,4	2006	7,2
Addition	104885		787	2,8	0	0,0
Total	419539		4798	17,3	2006	7,2

Saved by SuRE-Fit	2793	GWh
	10,1	PJ

Assumed: 80% of all multi-family dwellings are low-rise

GREECE

Profile

Population	Dwell/1000 inhabitants	Total Dwellings	Multi-family	High-rise	Low-rise
			40,6%	No data	
10934097	500	5467049	2219622		

Building period

	Multi-family %	Abs	High-rise %	Abs	Low-rise %	Abs
Built >1990	17	377336	18,5	No data		
Built '45-'90	81,8	1815651	80,9			
Built <1945	1,2	26635	0,6			

	Multi-family %	Abs	High-rise %	Abs	Low-rise %	Abs
Built '45-'60	12,2	270794				
Built '60-'70	19,6	**435046**				
Built '70-'80	24,5	**543807**				
Built '80-'90	19,1	423948				

Ownership

	Multi-family %	Abs	High-rise %	Abs	Low-rise %	Abs
Public rental						
Cooperative						
Private rental	33	732475				
Owner occupied	62,2	1380605				
Other	4,8	106542				

Potential

	# dwellings Theoretical	Practical	Tot. Current Demand [GWh] Max	Tot. Current Demand [PJ] Max.	Demand after retrofit [GWh] Max.	Demand after retrofit [PJ] Max.
Max potential	214565		2736	9,8	1368	4,9
Addition	71522		536	1,9	0	0,0
Total	286086		3272	11,8	1368	4,9

Saved by SuRE-Fit	1904	GWh
	6,9	PJ

Assumed: 80% of all multi-family dwellings are low-rise

ITALY

Profile

Population	Dwell/1000 inhabitants	Total Dwellings	Multi-family	High-rise	Low-rise
			77,1%	39,2%	37,9%
56995744	479	27300961	21049041	8251224	10347064

Building period

	Multi-Family %	Abs	High-rise %	Abs	Low-rise %	Abs
Built >1990			9,3	771642	7,0	676178
Built '45-'90			78,5	6390531	65,7	6387340
Built <1945			13,1	1085262	27,4	2661512

	Multi-Family %	Abs	High-rise %	Abs	Low-rise %	Abs
Built '45-'60					15,3	1585095
Built '60-'70					21,1	**2184222**
Built '70-'80					18,5	**1917994**
Built '80-'90					8,6	888430

Ownership

	Multi-family %	Abs	High-rise %	Abs	Low-rise %	Abs
Public rental	5,4	1096843	9,2	759113	3,3	337731
Cooperative	0,5	101560	1,1	90763	0,1	10796
Private rental	13,5	2742109	14,2	1171674	15,2	1570435
Owner occupied	72,2	14665203	68	5610832	87,5	9054370
Other	8,4	1706200,86	7,5	618842	10,5	1087359

Potential

	# dwellings Theoretical (Max. pot.)	Practical (Min. Pot.)	Tot. Current Demand [GWh] Max (Min)	Tot. Current Demand [PJ] Max (Min)	Demand after retrofit [GWh] Max (Min)	Demand after retrofit [PJ] Max (Min)
Max potential	1060423	648564	19001 (13672)	68,4 (49,2)	9500 (4785)	34,2 (24,6)
Addition	353474	216188	2980 (1595)	10,7 (5,7)	0	0
Total	1413897	864751	21981 (15267)	79,1 (55)	9500 (4785)	34,2 (24,6)

	Current Emiss. [Mton CO2] Max (Min)	After SuRE-Fit [Mton CO2] Max (Min)
Max potential	3,83 (2,76)	1,92 (1,38)
Addition	0,60 (0,32)	0
Total	4,43 (3,08)	1,92 (1,38)

Saved by SuRE-Fit 10482 – 12481 GWh
30,4 - 44,9 PJ
1,70 - 2,52 Mton CO2

PORTUGAL

Profile

Population	Dwell/1000 inhabitants	Total Dwellings	Multi-family	High-rise	Low-rise
			22,6%	2,2%	
10379684	486	5044526	1140063	24625	1115438

Building period

	Multi-Family %	Abs	High-rise %	Abs	Low-rise %	Abs
Built >1990	14,4	164169	32,2	7929	14,0	156240
Built '45-'90	73,4	836806	64,5	15883	73,6	820923
Built <1945	12,2	139088	3,3	813	12,4	138275

	Multi-Family %	Abs	High-rise %	Abs	Low-rise %	Abs
Built '45-'60	9,8	111726	5,5	1354	6,3	70001
Built '60-'70	15,3	174430	12,6	3103	14,4	**160366**
Built '70-'80	25,4	289576	20,4	5024	23,3	**259641**
Built '80-'90	23	262214	26,1	6427	29,8	332187
					Extrapolated	

Ownership

	Total %	Abs	High-rise %	Abs	Low-rise %	Abs
Public rental	3,2	161425	5,3	1305	No data	
Cooperative	0,1	5045	0,1	25		
Private rental	21	1059350	19,7	4851		
Owner occupied	75,7	3818706	74,9	18444		
Other	0	0	0	0		

Potential

	# dwellings Theoretical	Practical	Tot. Current Demand [GWh] Max	Tot. Current Demand [PJ] Max.	Demand after retrofit [GWh] Max.	Demand after retrofit [PJ] Max.
Max potential	111932		1427	5,1	714	2,6
Addition	37311		280	1,0	0	0,0
Total	149243		1707	6,1	714	2,6

Saved by SuRE-Fit	993	GWh
	3,6	PJ

Assumed: 2,2 % of all multi-family buildings is high-rise

SPAIN

Profile

Population	Dwell/1000 inhabitants	Total Dwellings	Multi-family	High-rise	Low-rise
			47,5%	30,6%	
40847371	513	20954701	9953483	3045766	6907717

Building period

	Multi-Family %	Abs	High-rise %	Abs	Low-rise %	Abs
Built >1990	14	1393488	11,3	344172	15,2	1049316
Built '45-'90	76,3	7594508	80,5	2451842	74,4	5142666
Built <1945	9,8	975441	8,3	252799	10,5	722643

	Multi-Family %	Abs	High-rise %	Abs	Low-rise %	Abs
Built '45-'60	13,7	1363627	12,4	377675	11,5	792162
Built '60-'70	22,1	2199720	25,7	782762	23,8	**1641820**
Built '70-'80	28,3	2816836	31,7	965508	29,3	**2025124**
Built '80-'90	12,2	1214325	10,8	328943	10,0	689948
					Extrapolated	

Ownership

	Total stock %	Abs	High-rise %	Abs	Low-rise %	Abs
Public rental	11,4	2388836	13,3	405087	No data	
Cooperative	0	0	0	0		
Private rental	0	0	0	0		
Owner occupied	82,2	17224764	82,7	2518848		
Other	6,5	1362056	4	121831		

Potential

	# dwellings Theoretical	Practical	Tot. Current Demand [GWh] Max	Tot. Current Demand [PJ] Max.	Demand after retrofit [GWh] Max.	Demand after retrofit [PJ] Max.
Max potential	1245844		15885	57,2	7942	28,6
Addition	415281		3115	11,2	0	0,0
Total	1661126		18999	68,4	7942	28,6

Saved by SuRE-Fit	11057	GWh
	39,8	PJ

IRELAND

Profile

Population	Dwell/1000 inhabitants	Total Dwellings	Multi-family	High-rise	Low-rise
			8,6%	No data	
3920000	327	1281840	110238		

Building period

	Total stock		High-rise		Low-rise	
	%	Abs	%	Abs	%	Abs
Built >1990	22,8	292260	No data			
Built '45-'90	72,5	929334				
Built <1945	0	0				

	Total stock		High-rise		Low-rise	
	%	Abs	%	Abs	%	Abs
Built '45-'60	33,4	428135	No data			
Built '60-'70	8,9	114084				
Built '70-'80	16,9	216631				
Built '80-'90	13,3	170485				

Ownership

	Total stock		High-rise		Low-rise	
	%	Abs	%	Abs	%	Abs
Public rental	6,9	88447				
Cooperative	0	0				
Private rental	11,1	142284				
Owner occupied	45	576828				
Other	37	474281				

Potential

	# dwellings		Tot. Current Demand [GWh]	Tot. Current Demand [PJ]	Demand after retrofit [GWh]	Demand after retrofit [PJ]
	Theoretical	Practical	Max	Max.	Max.	Max.
Max potential	10683		136	0,5	68	0,2
Addition	3561		27	0,1	0	0,0
Total	14243		163	0,6	68	0,2

Saved by SuRE-Fit	95	GWh
	0,3	PJ

GREAT BRITAIN

Profile

Population	Dwell/1000 inhabitants	Total Dwellings	Multi-family	High-rise	Low-rise
			18,7%	2,4%	
49370000	428	21130360	3951377	94833	3856544

Building period

	Multi-Family %	Abs	High-rise %	Abs	Low-rise %	Abs
Built >1990	6,5	256840	1,9	1802	6,6	255038
Built '45-'90	66,9	2643471	80,7	76530	66,6	2566941
Built <1945	26,5	1047115	17,5	16596	26,7	1030519

	Multi-Family %	Abs	High-rise %	Abs	Low-rise %	Abs
Built '45-'60	21,6	853497	39,9	37838	32,9	1269157
Built '60-'70	19,4	766567	35,5	33666	29,3	**1129200**
Built '70-'80	8,9	351673	2,8	2655	2,3	**89064**
Built '80-'90	17	671734	2,5	2371	2,1	79521
					Extrapolated	

Ownership

	Total stock %	Abs	High-rise %	Abs	Low-rise %	Abs
Public rental	0	0	0	0	No data	
Cooperative	0	0	0	0		
Private rental	9,7	2049645	9,7	9199		
Owner occupied	21	4437376	21	19915		
Other	69,9	14770122	69,3	65719		

Potential

	# dwellings Theoretical	Practical	Tot. Current Demand [GWh] Max	Tot. Current Demand [PJ] Max.	Demand after retrofit [GWh] Max.	Demand after retrofit [PJ] Max.
Max potential	732176		9335	33,6	4668	16,8
Addition	244059		1830	6,6	0	0,0
Total	976235		11166	40,2	4668	16,8

Saved by SuRE-Fit	6498	GWh
	23,4	PJ

CZECH REPUBLIC

Profile

Population	Dwell/1000 inhabitants	Total Dwellings	Multi-family	High-rise	Low-rise
			56,5%	33,8%	
10230060	374	3826042	2161714	730659	1431055

Building period

	Multi-Family %	Abs	High-rise %	Abs	Low-rise %	Abs
Built >1990	6,4	138350	6,5	47493	6,3	90857
Built '45-'90	76,6	1655873	81,9	598410	73,9	1057463
Built <1945	17,2	371815	11,6	84756	20,1	287058

	Multi-Family %	Abs	High-rise %	Abs	Low-rise %	Abs
Built '45-'60	11,3	244274	5,4	39456	4,9	69723
Built '60-'70	19,7	425858	20,1	146863	18,1	**259524**
Built '70-'80	26	562046	30,9	225774	27,9	**398970**
Built '80-'90	18,9	408564	25	182665	22,6	322791
					Extrapolated	

Ownership

	Total %	Abs	High-rise %	Abs	Low-rise %	Abs
Public rental	16,9	646601	27,4	200201	No data	
Cooperative	17	650427	36,8	268883		
Private rental	16,2	619819	15,7	114714		
Owner occupied	46,9	1794414	17,8	130057		
Other	3	114781	2,3	16805		

Potential

	# dwellings Theoretical	Practical	Tot. Current Demand [GWh] Max	Tot. Current Demand [PJ] Max.	Demand after retrofit [GWh] Max.	Demand after retrofit [PJ] Max.
Max potential	286115		2918	10,5	1459	5,3
Addition	95372		572	2,1	0	0,0
Total	381487		3491	12,6	1459	5,3

Saved by SuRE-Fit	2031	GWh
	7,3	PJ

HUNGARY

Profile

Population	Dwell/1000 inhabitants	Total Dwellings	Multi-family	High-rise	Low-rise
			33,6%	23,2%	
10198315	423	4313887	1449466	336276	1113190

Building period

	Multi-Family %	Abs	High-rise %	Abs	Low-rise %	Abs
Built >1990	3,8	55080	1,3	4372	4,6	50708
Built '45-'90	75,8	1098695	85,5	287516	72,9	811179
Built <1945	20,4	295691	13,2	44388	22,6	251303

	Multi-Family %	Abs	High-rise %	Abs	Low-rise %	Abs
Built '45-'60	6,5	94215	1,9	6389	1,6	18026
Built '60-'70	15,3	221768	9,4	31610	8,0	**89182**
Built '70-'80	32	463829	47	158050	40,1	**445911**
Built '80-'90	22	318883	27,3	91803	23,3	259008
					Extrapolated	

Ownership

	Total stock %	Abs	High-rise %	Abs	Low-rise %	Abs
Public rental	3,7	159614	No data			
Cooperative	0	0				
Private rental	3,6	155300				
Owner occupied	91,9	3964462				
Other	0,8	34511				

Potential

	# dwellings Theoretical	Practical	Tot. Current Demand [GWh] Max	Tot. Current Demand [PJ] Max.	Demand after retrofit [GWh] Max.	Demand after retrofit [PJ] Max.
Max potential	145813		1487	5,4	744	2,7
Addition	48604		292	1,0	0	0,0
Total	194417		1779	6,4	744	2,7

Saved by SuRE-Fit	1035	GWh
	3,7	PJ

POLAND

Profile

Population	Dwell/1000 inhabitants	Total Dwellings	Multi-family	High-rise	Low-rise
			63,1%	38,9%	
38218530	328	12535678	7910013	3076995	4833018

Building period

	Multi-Family %	Abs	High-rise %	Abs	Low-rise %	Abs
Built >1990	11	870101	14	430779	9,1	439322
Built '45-'90	65	5141508	81	2492366	54,8	2649142
Built <1945	24	1898403	5	153850	36,1	1744553

	Multi-Family %	Abs	High-rise %	Abs	Low-rise %	Abs
Built '45-'60	26	2056603	28	861559	18,9	**915753**
Built '60-'70	20	1582003	27	830789	18,3	**883047**
Built '70-'80	19	1502902	26	800019	17,6	850342
Built '80-'90						

Extrapolated

Ownership

	Total stock %	Abs	High-rise %	Abs	Low-rise %	Abs
Public rental	6,5	814819	No data			
Cooperative	25,5	3196598				
Private rental	1,6	200571				
Owner occupied	66	8273547				
Other	0,4	50143				

Potential

	# dwellings Theoretical	Practical	Tot. Current Demand [GWh] Max	Tot. Current Demand [PJ] Max.	Demand after retrofit [GWh] Max.	Demand after retrofit [PJ] Max.
Max potential	741106		7559	27,2	3780	13,6
Addition	247035		1482	5,3	0	0,0
Total	988141		9041	32,5	3780	13,6

Saved by SuRE-Fit	5262	GWh
	18,9	PJ

SLOVAKIA

Profile

Population	Dwell/1000 inhabitants	Total Dwellings	Multi-family	High-rise	Low-rise
			51,5%	37,5%	
5379455	310	1667631	858830	322061	536769

Building period

	Multi-Family %	Abs	High-rise %	Abs	Low-rise %	Abs
Built >1990	4,6	39506	4,4	14171	4,7	25335
Built '45-'90	91,7	787547	93,1	299839	90,9	487708
Built <1945	3,7	31777	2,5	8052	4,4	23725

	Multi-Family %	Abs	High-rise %	Abs	Low-rise %	Abs
Built '45-'60	9,5	81589	3,2	10306	3,1	16763
Built '60-'70	19,2	164895	17,3	55717	16,9	**90627**
Built '70-'80	34,4	295438	36,4	117230	35,5	**190683**
Built '80-'90	28,6	245625	36,2	116586	35,3	189635
					Extrapolated	

Ownership

	Total stock %	Abs	Multi-family %	Abs	Low-rise %	Abs
Public rental	3,7	61702	11,5	98765	No data	
Cooperative	14,9	248477	28,5	244767		
Private rental	0,1	1668	0	0		
Owner occupied	75,9	1265732	51,2	439721		
Other	5,4	90052	8,8	75577		

Potential

	# dwellings Theoretical	Practical	Tot. Current Demand [GWh] Max	Tot. Current Demand [PJ] Max.	Demand after retrofit [GWh] Max.	Demand after retrofit [PJ] Max.
Max potential	104085		1062	3,8	531	1,9
Addition	34695		208	0,7	0	0,0
Total	138779		1270	4,6	531	1,9

Saved by SuRE-Fit	739	GWh
	2,7	PJ

SLOVENIA

Profile

Population	Dwell/1000 inhabitants	Total Dwellings	Multi-family	High-rise	Low-rise
			28,4%	12,4%	
1964036	396	777758	220883	27390	193494

Building period

	Multi-Family %	Abs	High-rise %	Abs	Low-rise %	Abs
Built >1990	4,6	10161	3,3	904	4,8	9257
Built '45-'90	84,5	186646	92,8	25417	83,3	161229
Built <1945	10,9	24076	3,9	1068	11,9	23008

	Multi-Family %	Abs	High-rise %	Abs	Low-rise %	Abs
Built '45-'60	10,7	23635	6,5	1780	5,8	11293
Built '60-'70	22,2	49036	23,3	6382	20,9	**40481**
Built '70-'80	31,4	69357	39,6	10846	35,6	**68800**
Built '80-'90	20,1	44398	23,4	6409	21,0	40655
					Extrapolated	

Ownership

	Total stock %	Abs	Multi-family %	Abs	Low-rise %	Abs
Public rental	6,5	50554	15,6	34458	No data	
Cooperative	0	0	0	0		
Private rental	2,6	20222	4,6	10161		
Owner occupied	82,2	639317	74,4	164337		
Other	8,7	67665	5,4	11928		

Potential

	# dwellings Theoretical	Practical	Tot. Current Demand [GWh] Max	Tot. Current Demand [PJ] Max.	Demand after retrofit [GWh] Max.	Demand after retrofit [PJ] Max.
Max potential	35626		363	1,3	182	0,7
Addition	11875		71	0,3	0	0,0
Total	47501		435	1,6	182	0,7

Saved by SuRE-Fit	253	GWh
	0,9	PJ

ESTONIA

Profile

Population	Dwell/1000 inhabitants	Total Dwellings	Multi-family	High-rise	Low-rise
			68,2%	No data	
1360000	454	617440	421094		

Building period

	Total stock		Multi-family		Low-rise	
	%	Abs	%	Abs	%	Abs
Built >1990	3,7	22845	3	12633	No data	
Built '45-'90	75,8	468020	87,6	368878		
Built <1945	20,5	126575	9,4	39583		

	Total stock		Multi-family		Low-rise	
	%	Abs	%	Abs	%	Abs
Built '45-'60	9,6	59274	7,8	32845	No data	
Built '60-'70	19,1	117931	23,1	**97273**		
Built '70-'80	20,9	129045	27	**113695**		
Built '80-'90	19,2	118548	25	105274		

Ownership

	Total stock		Multi-family		Low-rise	
	%	Abs	%	Abs	%	Abs
Public rental	3	18523	No data			
Cooperative	0	0				
Private rental	10	61744				
Owner occupied	85	524824				
Other	0	0				

Potential

	# dwellings		Tot. Current Demand [GWh]	Tot. Current Demand [PJ]	Demand after retrofit [GWh]	Demand after retrofit [PJ]
	Theoretical	Practical	Max	Max.	Max.	Max.
Max potential	43881		448	1,6	224	0,8
Addition	14627		88	0,3	0	0,0
Total	58508		535	1,9	224	0,8

Saved by SuRE-Fit	312	GWh
	1,1	PJ

Assumed: 80% of all multi-family dwellings are low-rise

LATVIA

Profile

Population	Dwell/1000 inhabitants	Total Dwellings	Multi-family	High-rise	Low-rise
			70,9%	No data	
2377383	403	958085	**679283**		

Building period

	Total stock		High-rise		Low-rise	
	%	Abs	%	Abs	%	Abs
Built >1990	3,5	33533	No data			
Built '45-'90	71,2	682157				
Built <1945	25,3	242396				

	Total stock		High-rise		Low-rise	
	%	Abs	%	Abs	%	Abs
Built '45-'60	10,1	96767	No data			
Built '60-'70	18,4	176288				
Built '70-'80	22	210779				
Built '80-'90	20,7	198324				

Ownership

	Total stock		High-rise		Low-rise	
	%	Abs	%	Abs	%	Abs
Public rental	16	153294	No data			
Cooperative	2	19162				
Private rental	3	28743				
Owner occupied	79	756887				
Other	0	0				

Potential

	# dwellings		Tot. Current Demand [GWh]	Tot. Current Demand [PJ]	Demand after retrofit [GWh]	Demand after retrofit [PJ]
	Theoretical	Practical	Max	Max.	Max.	Max.
Max potential	74645		761	2,7	381	1,4
Addition	24882		149	0,5	0	0,0
Total	99527		911	3,3	381	1,4

Saved by SuRE-Fit	530	GWh
	1,9	PJ

Assumed: 80% of all multi-family dwellings are low-rise

LITHUANIA

Profile

Population	Dwell/1000 inhabitants	Total Dwellings	Multi-family	High-rise	Low-rise
			61,2%	No data	
3483972	371	1292554	**791043**		

Building period

	Total stock		High-rise		Low-rise	
	%	Abs	%	Abs	%	Abs
Built >1990	7	90479	No data			
Built '45-'90	66	853085				
Built <1945	27	348989				

	Total stock		High-rise		Low-rise	
	%	Abs	%	Abs	%	Abs
Built '45-'60	19	245585	No data			
Built '60-'70	15	193883				
Built '70-'80	17	219734				
Built '80-'90	15	193883				

Ownership

	Total stock		High-rise		Low-rise	
	%	Abs	%	Abs	%	Abs
Public rental	3	38777	No data			
Cooperative	0	0				
Private rental	8	103404				
Owner occupied	87,2	1127107				
Other	1,8	23266				

Potential

	# dwellings		Tot. Current Demand [GWh]	Tot. Current Demand [PJ]	Demand after retrofit [GWh]	Demand after retrofit [PJ]
	Theoretical	Practical	Max	Max.	Max.	Max.
Max potential	55487		566	2,0	283	1,0
Addition	18496		111	0,4	0	0,0
Total	73983		677	2,4	283	1,0

Saved by SuRE-Fit	394	GWh
	1,4	PJ

Assumed: 80% of all multi-family dwellings are low-rise

CYPRUS

Profile

Population	Dwell/1000 inhabitants	Total Dwellings	Multi-family	High-rise	Low-rise
			20,5%	No data	
703629	416	292710	60005		

Building period

	Total stock		Multi-family		Low-rise	
	%	Abs	%	Abs	%	Abs
Built >1990	28,2	82544	No data			
Built '45-'90	48,8	142842				
Built <1945	23	67323				

	Multi-Family		High-rise		Low-rise	
	%	Abs	%	Abs	%	Abs
Built '45-'60	No data					
Built '60-'70						
Built '70-'80						
Built '80-'90						

Ownership

	Total stock		High-rise		Low-rise	
	%	Abs	%	Abs	%	Abs
Public rental	3	8781	No data			
Cooperative	0	0				
Private rental	17,7	51810				
Owner occupied	64,3	188212				
Other	15	43906				

Potential

	# dwellings		Tot. Current Demand [GWh]	Tot. Current Demand [PJ]	Demand after retrofit [GWh]	Demand after retrofit [PJ]
	Theoretical	Practical	Max	Max.	Max.	Max.
Max potential	7965		81	0,3	41	0,1
Addition	2655		16	0,1	0	0,0
Total	10620		97	0,3	41	0,1

Saved by SuRE-Fit	57	GWh
	0,2	PJ

Assumed: 80% of all multi-family dwellings are low-rise

MALTA

Profile

Population	Dwell/1000 inhabitants	Total Dwellings	Multi-family	High-rise	Low-rise
397296	451	179180	No data		

Building period

	Total stock		High-rise		Low-rise	
	%	Abs	%	Abs	%	Abs
Built >1990	9,1	16305	No data			
Built '45-'90	65,4	117184				
Built <1945	25,5	45691				

	Total stock		High-rise		Low-rise	
	%	Abs	%	Abs	%	Abs
Built '45-'60	11,1	19889	No data			
Built '60-'70	11,1	19889				
Built '70-'80	18,3	32790				
Built '80-'90	24,8	44437				

Ownership

	Total stock		High-rise		Low-rise	
	%	Abs	%	Abs	%	Abs
Public rental	22,4	40136	No data			
Cooperative	0	0				
Private rental	0	0				
Owner occupied	74,1	132773				
Other	3,5	6271				

Potential

	# dwellings		Tot. Current Demand [GWh]	Tot. Current Demand [PJ]	Demand after retrofit [GWh]	Demand after retrofit [PJ]
	Theoretical	Practical	Max	Max.	Max.	Max.
Max potential	17077		174	0,6	87	0,3
Addition	5692		34	0,1	0	0,0
Total	22769		208	0,8	87	0,3

Saved by SuRE-Fit	121	GWh
	0,4	PJ

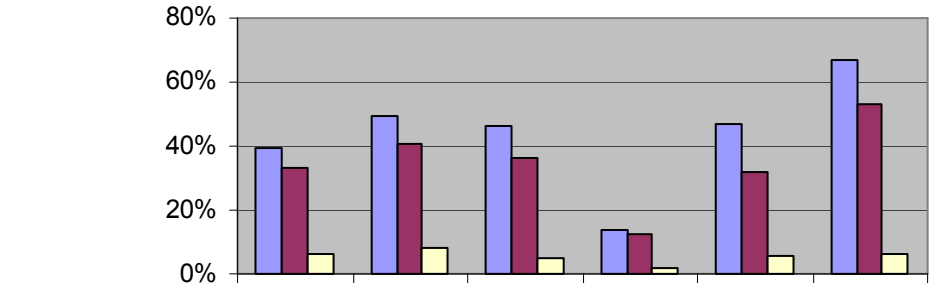
Assumed: 48% of the housing stock is multi-family and 80% of all multi-family dwellings are low-rise

2.5 Overview results

		Total # Dwellings	Multi-family	Low-rise	Built '60-'80	Max. potential	Saved Energy [GWh]
West Europe	AUSTRIA		52%	No data*		6%	
		3261368	1699173	*1359338*	*429551*	211554	1878
	BELGIUM		25%			2%	
		4097125	1028378	984158	*245165*	87397	776
	FRANCE		43%			3%	
		28668114	12413293	7855063	2694287	987456	8764
	GERMANY		54%			13%	
		38709853	20864611	19612734	9620217	5163651	45827
	LUXEMBOURG		29%			4%	
		171870	50014	41912	11830	6719	60
	NETHERLANDS		31%			8%	
		6634647	2063375	1925129	965928	540920	4801
Nordic	DENMARK		39%			4%	
		2540543	985731	883215	282756	110982	985
	FINLAND		58%			13%	
		2548043	1467673	1144785	585257	327744	2909
	SWEDEN		52%	No data*		7%	
		4312018	2237937	*1790350*	*662429*	314654	2793
South Europe	GREECE		41%	No data*		4%	
		5467049	2219622	*1775697*	*783083*	214565	1904
	ITALY		74%			8%	
		27300961	20311915	15701110	6566029	2110978	18735
	PORTUGAL		23%			2%	
		5044526	1140063	1115438	420007	111932	993
	SPAIN		48%			6%	
		20954701	9953483	6907717	3666944	1245844	11057
GB & IE	IRELAND		9%	No data*		1%	
		1281840	110238	*88191*	*22753*	10683	95
	GR. BRITAIN		19%			3%	
		21130360	3951377	3856544	1218263	732176	6498
Central Europe	CZECH REPU.		57%			7%	
		3826042	2161714	1431055	658493	286115	2031
	HUNGARY		34%			3%	
		4313887	1449466	1113190	535094	145813	1035
	POLAND		63%			6%	
		12535678	7910013	4833018	1798800	741106	5262
	SLOVAKIA		52%			6%	
		1667631	858830	536769	281310	104085	739
	SLOVENIA		28%			5%	
		777758	220883	193494	109281	35626	253
North East Eur.	ESTONIA		68%	No data*		7%	
		617440	421094	*336875*	*168775*	43881	312
	LATVIA		71%	No data*		8%	
		958085	679283	*543426*	*219544*	74645	530
	LITHUANIA		61%	No data*		4%	
		1292554	791043	*632834*	*202507*	55487	394

Mediter.	CYPRUS		21%	No data*		3%	
		292710	60005	*48004*	*23426*	7965	57
	MALTA					10%	
		179180	No data*	*68805*	20229	17077	121
	TOTAL	198583985	95049225	74778852	32191958	**13689056**	118807
			48%	38%		7%	GWh

A total number of 13.689.056 belongs to the maximum theoretical potential of SuRE-Fit.



	West-Eur.	Nordic	South Eur.	GB & Ireland	Central Eur.	North East Eu.
% Multi-family	39%	49%	46%	14%	47%	67%
% Low-rise	33%	40%	36%	13%	32%	53%
% Max.Potential	6%	8%	5%	2%	6%	6%