

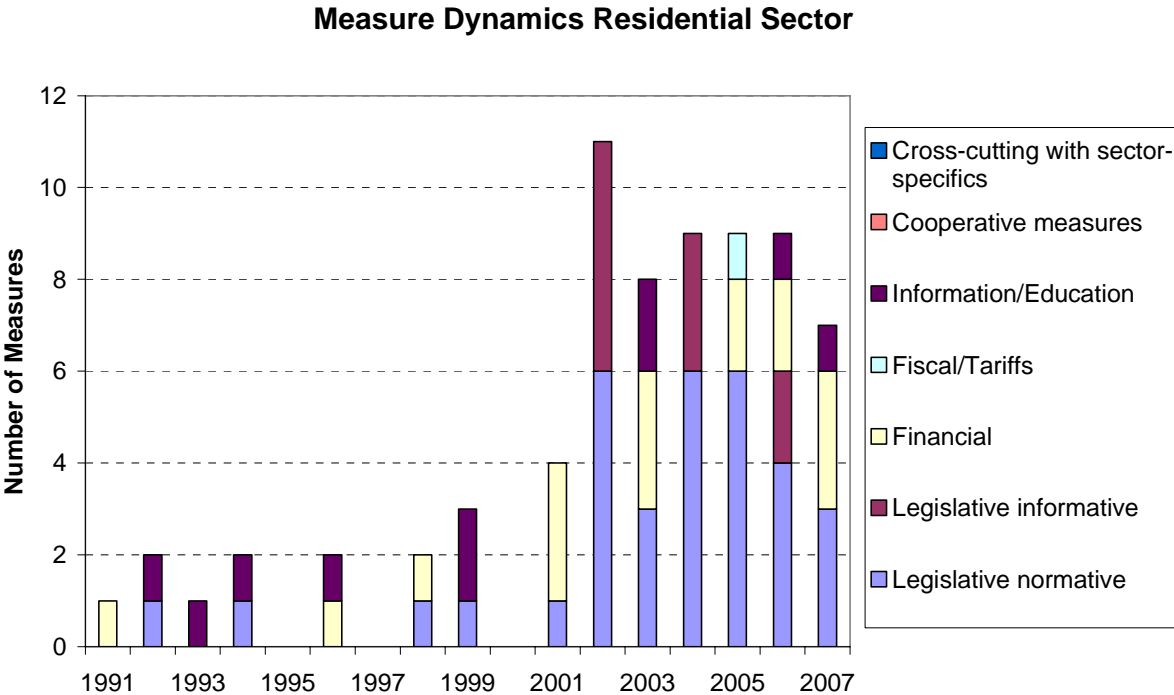
9. Energy Efficiency Policies in the Household Sector

9.1. Measure dynamics in the residential sector

Important dynamics in the update of building regulations

Figure 9-1 illustrates the dynamics of the introduction of different types of measures over time in the residential sector. The graphics shows the important share that legislative-normative measures (building regulations implementing the European Directive for the Energy Performance of Buildings EPBD and the building certificates which are associated to this Directive) occupy in this sector. Informational measures and subsidies are also quite important.

Figure 9-1: Dynamics of measure types in the residential sector (NMCs)



9.2. High impact energy efficiency measures

High impact measures in the residential sector are frequently legislative-normative or legislative informative measures⁷⁰

About 14 % of all measures introduced in the residential sector in the NMCs are considered to be high impact measures while it is around 26% in the EU-15. Table 9-1 shows a list of these measures. The classification of measure types in the last column

⁷⁰ High impact measures are measures with energy savings >0.5% of the total consumption in the sector.

shows there are essentially legislative-normative measures (building regulations, mandatory separate heat billing) present among the high-impact measures as well as subsidies for energy efficiency measures. Interesting is the fact that only three of the NMCs consider building regulation as high-impact measures, indicating the margin for policy tightening. This can be compared with EU-15 countries (and Norway) where 10 out of 16 consider building regulation a high-impact measure. This could be a hint that there are stronger barriers to the implementation of the Energy Performance Directive for Buildings in the NMC than in the EU-15 due to a stronger lack in qualified staff, for example for the certification process (see status reports of Building Platform⁷¹). This indicates further that the dynamics that is linked to the introduction of new building regulation was only partly utilised to go for very tight regulations in the field. This gap could be an issue to be corrected in further revisions of the legislation. Building certificates are at least mentioned in Slovakia as an important high impact measure.

Table 9-1: High impact measures in the NMCs residential sector

Country	Measure title	Measure type
Bulgaria	Individual billing (multy-family houses)	Legislative-Normative
	Buildings - Minimum Thermal Insulation	Legislative-Normative
	Residential Energy Efficiency Credit Facility REECL	Subsidies
Cyprus	Law for the energy performance of buildings	Legislative-Normative
	Governmental financial support schemes for investments in RES/RUE/EE	Subsidies
	Scheme for subsidising CFL lamps	Subsidies
Hungary	Energy efficient renovation of residential buildings built with industrialised technology	Subsidies
Malta	Rebates on investments in energy efficiency by domestic consumers	Subsidies
Poland	Technical Requirements for Buildings and their Location	Legislative-Normative
Slovakia	Energy Efficiency Certificates for Buildings	Legislative-Informative

The important dynamics which occurred in the thermal building regulations is well illustrated with the example of Lithuania. In this country the new regulation “Thermal Technique of Envelopes of the Buildings” (STR 2.05.01:2005) substituted the former regulation STR 2.05.01:1999. Regulation STR 2.05.01:2005 came into force on 19

⁷¹ http://www.buildingsplatform.eu/epbd_publication/doc/EPBD_BuPLa_Country%20reports_20070920_p2844.pdf

August 2005 and is valid up to now. The dynamics of U – values are shown in **Table 9-2**.

Compared to the very early state of the Soviet time the walls and the roofs for example have improved by more than a factor of 4, the windows by a factor of 2. The comparison with the Finnish values and development over the past decades (**Table 9-3**) shows that the level of performance is now rather similar in both countries. Both countries lie in a comparable climatic zone, at least the mostly populated areas of Finland.

Table 9-2: Development of building insulation requirements in Lithuania

	External walls		Windows		Roof	
	Dwellings	Public houses	Dwellings	Public houses	Dwellings	Public houses
Standards in the former USSR	0,9		2,6-3,0		0,8-1,0	
RSN 143-92	0,3		1,9		0,31	
STR 2.05.01:1999	0,26·κ	0,30·κ	1,9·κ	1,9·κ	0,18·κ	0,20·κ
STR 2.05.01:2005	0,20·κ	0,25·κ	1,6κ	1,6·κ	0,16·κ	0,20·κ

Table 9-3: Transmission coefficient U (W/m² K) according to the different versions of the Finnish Thermal Insulation Ordinance

	Outer wall	Ceiling, roof	Base floor	Window
1976	0.9/0.7/0.4	0.35	0.4	2.1/3.1
1978	0.35/0.29	0.29/0.23	0.23/0.4	2.1/3.1
1985	0.28	0.22	0.22/0.36	2.1/3.1
2003	0.25	0.16	0.25	1.4/2.1

9.3. Innovative energy efficiency measures

The following list provides some examples of particularly innovative measures in the residential sector in the NMCs:

- **Building tax exemption:** The Local Taxes and Duties Act in Bulgaria provides for a building tax exemption from 2005 for the owners of buildings as follows: (1) The owners of buildings, having obtained a certificate category A, issued under the Energy Efficiency Act and Building Certificate Regulation, are exempt from building tax for the term of 10 years starting from the first year after issuing of the certificate; (2) The owners of buildings, having obtained a certificate category B are exempt from building tax for the term of 5 years, starting from the first year after issuing of the certificate. (Bulgaria)

- **Limitations on indoor temperatures** (Slovakia, **Box 9-1**): This measure is in so far interesting as such types of measures have been experimented in the seventies and eighties in the frame of the oil price crises of that time. In that sense, the measure naturally is not innovative. However, what makes it interesting is that as compared to the seventies where there was a clear perception of the urgency of the problems, the recent years with the high oil prices and the stronger perception in the public on climate change issues have made that measure influencing behaviour start to make reappearance. It has to be seen whether this type of measure will also occur more frequently in future with the problem pressure becoming stronger.

Box 9-1: Slovakia - Maximum Indoor Temperature Limits in the Heating Period

The Decree No 152/2005 “On the Defined Time and Quality of the Heat Delivered for the Final Consumer” which implements the Act No 657/2004 “On Heat Energy” defines the time of heat delivery and sets the indoor temperature. The Decree defines the beginning of the heating period as September 1st and the end as May 31st of the relevant year; heat delivery starts when the average outdoor temperature in the two preceding days drops under 13°C and immediate temperature recovery is not expected. The end of heat delivery is defined accordingly. Heat delivery shall achieve indoor temperature within the range of $\pm 3^{\circ}\text{C}$ in heated rooms in compliance with the following table:

Table 9-4: Temperature limits fixed for residential and public buildings in Slovakia

	Indoor temperature [$^{\circ}\text{C}$]
Residential buildings	
Habitable rooms	21
Kitchens	20
Bathrooms	24
Other heated rooms (corridors, foyers etc.)	15
Administration buildings	
Offices, waiting rooms, conference rooms etc.	20
Collateral heated rooms (corridors, main staircase, etc.)	15
Schools	
Classes	20
Gymnasiums	15
Nursery schools	22
Hospitals	
Wards,	22
General treatment rooms, consulting rooms	24
Surgery	25 at least
Other heated rooms (corridors, staircases, anterooms...)	20

The Decree allows the heat supplier to limit delivery between 2200 and 500 hours of the following day. It defines also the temperature of hot water delivered to the final consumer as 45°C minimum and 55°C maximum. The measure is monitored and controlled by the State Energy Inspectorate. A similar measure was included in the Decree No 15/1999 of the Ministry of Economy.

- *Rebates on investments in energy efficiency in the domestic sector*, in particular for electric appliances (Malta, **Box 9-2**).
- *Building certificates*: They are to be implemented by all EU Member States, including the NMC, in the frame of the European Directive for the Energy Performance of Buildings. However, similar to the EU-15 countries, the introduction is delayed due to problems with the introduction of the certificates and the qualification of auditors (see reference of footnote 71).

Box 9-2: Rebates on investments in energy efficiency in the domestic sector (Appliances)

In the budget speech for 2007 Government announced a scheme whereby the purchase of energy efficient appliances is incentivised through payment of a rebate on the purchase price of the appliance. The scheme has been very successful with so far close to 8,000 applications for the rebate being submitted to the Malta Resources Authority in the first six months of operation and about 100 new applications are being received daily. The Authority has also registered 35 importers and 40 other retail outlets. 1,400 different appliances have been registered by dealers with the Authority. The information on the registered dealers and appliances can be accessed on the Authority's website www.mra.org.mt. The scheme also requires that available technical documentation to demonstrate the eligibility of the registered appliances for the rebate be submitted and vetted. Appliances that are registered for similar schemes in other EU Member States and/or subject to third party verification have been exempted from the need to be covered by such verification. This scheme came into effect from 1st November 2006 as follows:

Table 9-5: Incentives in Malta for energy efficient appliances

Appliances	Category	20% of selling price with a maximum grant of Lm
Dishwashers	A	25
Refrigerators, Freezers or Combinations	A Tropical	50
	A+ Subtropical	50
	A Subtropical (till 31st March 2007)	25
Washing Machines	A	25
Tumble Dryers	A	25
Air Conditioning Units	A	25

(1 Euro is around 0,43 LM)

9.4. Conclusions

The main conclusions for the residential sector are:

- There was an important dynamics in recent years in the NMCs with the update of the building regulations. A variety of them have achieved standards which are 4-5 times lower than in the eighties as shown by the example of Lithuania.
- Nevertheless, this process has not yet been fully used to introduce tight regulations for new buildings (and larger additions to existing buildings). This could be an issue for consideration in further revisions of the legislation in order to take benefit from the substantial improvements which are still possible with buildings.
- Measures for existing buildings, which generally represent 95% of energy consumption for heating, are still largely absent in the mix of high-impact measures, although a variety of subsidy programmes do exist in the NMCs for the energetic improvement of these buildings.
- Interesting innovative measures in the residential sector concern building tax exemptions, the limitation of internal temperatures for rooms (which might indicate the revival of policies dealing with behavioural aspects under the combined pressure of high energy prices and climate change impacts).