

Analysis of households' energy bill affordability and recommendations for a social safety net

REEPD - Ukraine:

Residential Energy Efficiency Policy Dialogue

Call-off 2, Task 2

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Report

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Table of Content

Policy Briefing.....	4
Introduction.....	6
1 Households' income situation.....	8
1.1 Population	8
1.2 Economic indicators	8
1.3 Wages.....	9
1.4 Household income and consumption.....	10
1.5 Equality / Poverty	14
1.6 Housing cost ratio / household fuel cost ratio	15
1.7 Housing and fuel costs for low income households	17
1.8 Tariffs for utility services	18
1.9 Specific income situation multi-apartment buildings vs single family homes	21
1.10 Projection of key indicators until 2020	21
2 Government housing programmes targeting on housing and fuel poverty	25
2.1 Direct subsidies to utility providers.....	25
2.2 Privileges to categorised households	26
2.3 Housing subsidies programme	26
2.4 Compensation for increased energy tariffs	29
2.5 Public housing.....	30
2.6 Targeting of social benefits / take up rate	30
2.7 The 2014 reform of social protection policy	30
3 Impact of energy tariff increases.....	32
3.1 Tariff increases 2014	32
3.2 Further tariff increases, consequences on housing subsidies	33
4 Affordability of residential energy efficiency investments	36
4.1 Model calculations of refurbishment projects.....	36
4.2 Additional needs for specific household groups.....	41
5 Recommendations.....	43
5.1 Policy related recommendations.....	43
5.2 Recommendations for EBRD Policy Dialogue and SEFF implementation	47
5.3 Estimate of market volume for thermal refurbishment	48
5.4 Implications on the housing subsidies programme	49
References	51
Contact details.....	53

List of Figures

Fig. 1-1 – Basic indicators for Ukraine. Index, 2004=100.....	8
Fig. 1-2 – Development of wages in Ukraine (€ denominated).....	10
Fig. 1-3 – Development of cash incomes of households (€ denominated).....	11
Fig. 1-4 – Cash incomes of households 2013 (€ denominated).	12
Fig. 1-5 – Development of pensions in UA (€ denominated).....	13
Fig. 1-6 – Household income and household consumption.....	14
Fig. 1-7 – Housing cost ratios in European Countries (National Accounts=COICOP).....	15
Fig. 1-8 – Household consumption on housing and energy in Ukraine	17
Fig. 1-9 – Housing cost ratio and household fuel cost ratio of different income groups	18
Fig. 1-10 – Share of households with access to district heating.....	20
Fig. 1-11 – Projection of key indicators until 2020	22
Fig. 2-1 – Subsidies for housing and household fuel in Ukraine.....	28
Fig. 2-2 – Share of households receiving housing subsidies in Ukraine 2013	29
Fig. 3-1 – Index tariffs for utility services in Ukraine, real (CPI deflator).....	32
Fig. 3-2 – Projection of housing and household energy cost ratio until 2020	34

List of Tables

Table 1: Development of wages in Ukraine	9
Table 2: Development of cash incomes of households	11
Table 3: Development of pensions (UAH)	12
Table 4: Household consumption on housing and energy in Ukraine	17
Table 5: Tariffs for utility services in Ukraine in UAH.....	19
Table 6: Forecast table of economic indicators until 2020.....	23
Table 7: Model calculations for different types of refurbishment	38
Table 8: Sensitivity analysis on Model b) for different framework conditions	39
Table 9: Prioritization of policy actions	48
Table 10: Forecast table inclusion of repair funds and refurbishment loans into the social protection scheme	50

Abbreviations

CEE	Central Eastern Europe
CPI	Consumer Price Index
EBRD	European Bank for Reconstruction and Development
EE	Energy Efficiency
EPBD	EU Energy Performance of Buildings Directive (recast, 2010/31/EU)
EPC	Energy Performance Certificate
EU-SILC	European Union Statistics on Incomes and Living Conditions
GDP	Gross Domestic Product
HMO	Housing and Maintenance Organization (Zhek)
HOA	Home Owners' Association
IDSS	Institute for Demography and Social Studies at the National Academy of Sciences of Ukraine
IIBW	Institut für Immobilien, Bauen und Wohnen (Institute for Real Estate, Construction and Housing), Vienna
LTV	Loan-to-value ratio
MDI	Municipal Development Institute
MINREGION	Ministry of Regional Development and Construction and Housing Utilities in Ukraine
NERC	National Electricity Regulation Commission
OA	Owners association
PPS	Purchase Power Standard
REEPD	Residential Energy Efficiency Policy Dialogue = E7 Technical Assistance project for EBRD
SSSU	State Statistics Service of Ukraine
UAH	Ukrainian Hryvnia
USAID	United States Agency for International Development
VAT	Value Added Tax

Policy Briefing

This report on *'households' energy bill affordability and recommendations for a social safety net* is part of the EBRD Technical Assistance project 'REEPD Ukraine – Supporting Investment in Energy Efficiency in Residential Buildings in the Ukraine – Residential Energy Efficiency Policy Dialogue', carried out by the Austrian consultant company E7 in cooperation with IIBW.

A focus on low income groups is not only important in terms of social policy. Poor owners often block decisions in multi-apartment buildings on maintenance and repair, as they cannot afford payments beyond the very minimum of utility services. Hence, new inclusive approaches targeting at those owners are of major importance also in terms of energy and environmental policy, economic policy, public health and welfare.

Wages and household incomes in Ukraine are far below Western European countries, but comparable e.g. with Bulgaria. There is a clear indication that Ukraine has a remarkably cohesive society with rather high equality of income and rather high convergence between rural and urban areas.

But similar to all transition countries, Ukraine has a division of incomes in terms of age groups, which differs fundamentally from Western countries. The elder generation was the loser of the transformation. The majority didn't find access to the job market, entitlements to pensions and other benefits were cut due the collapse of institutions and hyperinflation. Today, the median pension in Ukraine is with UAH 1,140 (€ 106; 2013) less than one third of the median household income. Pensions increased considerably in the past decade, but remained below wages and household incomes in total. Still it seems that for most elderly people in Ukraine a life in dignity is possible, combining a privatised apartment, subsidised utility costs, a low pension, some grains from their summer houses and support from relatives. Ukraine has an aging society. The share of population over 60 years of age is with 21% below EU average, but above CEE countries such as Slovakia, Poland or Russia and quickly growing.

Contrary to Western Europe and many transition countries, the ratio of housing costs in Ukraine have remained stable on a very low level of around 10% from total consumption, for the past decade. Expenditures on energy have even decreased. This development was only possible with politically depressed utility tariffs.

Tariffs for energy and utility services have repeatedly and strongly been increased. But the situation looks different, if price increases are balanced with the inflation rate, which was more than 10% in the average of the past decade (2004-2013). In 'real' terms electricity (tariffs for low consumption households), district heating and housing maintenance (both weighted average for Ukraine) have decreased or stagnated in the past decade until 2013, and gas and water have increased by less than 30%. 2014 brought heavy increases for most of these utilities, but expected inflation is likely to balance it again over time. Tariffs for energy and utility services in Ukraine are still three- to eightfold cheaper, compared with the EU.

Depressed tariffs imply massive direct subsidies to utility providers. The gap between costs and earnings has to be covered by the public or by lacking investments and poor services. This is also the reason why richer municipalities, such as Kyiv, have much lower utility tariffs compared to many poorer regions. Those implicit subsidies are estimated at 1% of GDP of Ukraine. Forcing utility providers to apply tariffs below own costs and far below reinvestment necessities is a cheap measure for the Government to satisfy population and prevent low income households from poverty. But obviously “there ain’t no such thing as a free lunch”. The policy of low tariffs goes at costs of sustainable infrastructure and increases the financial load of future generations. It discourages investments in housing refurbishment.

Additionally to depressed utility tariffs, not less than estimated 14% of Ukrainian population benefit from privileges concerning housing and utility costs. Contrary to many Western countries, privileges are popular in Ukraine and it seems difficult to combat the ‘culture of privileges’.

A third layer of social protection in the field of housing and energy is the housing subsidies programme, which has recently undergone a promising reform. In 2013 it included almost UAH 1,945 mill. (€ 180 mill.) and supported 9.1% of households.

In 2014 an additional compensation for increased energy tariffs was introduced. However, the old waiting list system for public housing is still in place. Altogether social policy in Ukraine is focused on providing assistance to a wide range of people. Direct subsidies to utility providers have almost no social targeting and privileges only quite a limited one. There is a substantial overlap between the different layers of social protection in housing and energy.

Based on this comprehensive analysis of incomes, housing costs and subsidy schemes, model calculations of thermal refurbishment projects led to important conclusions: Before introducing Sustainable Energy Finance Facilities (SEFF), the Government is advised to do some other homework. Thermal refurbishment only makes sense provided there is some own equity of the owners. In the multi-apartment sector the only way is endowments to reserve funds, which are not in place yet. The income situation of poor owners has to be considered. None of the calculated models (including SEFF financing) was affordable for low income strata of population. Hence, payments for refurbishment loan instalments should become subject to social protection schemes. SEFFs may be introduced in short term in few pilot projects of HOA organised multi-apartment buildings and single family homes of well-off owners. But broad implementation and hence broad scale effects may be achieved only after resolution of important framework conditions.

Inclusion of low income households into comprehensive thermal rehabilitation projects, more effective utility services and more energy efficiency in the residential sector, may be achieved with the following legal and policy reforms:

- Adoption of pricing mechanisms for energy and utility tariffs;
- Stimulation of cash-flows in residential buildings, building up of reserve funds;
- Inclusion of payments for housing refurbishment into the housing subsidies programme;
- Re-establishment of housing management regulations;
- Streamlining of social protection in the field of housing and energy.

Introduction

This report is a part of Call-Off 2 of the project 'REEPD Ukraine – Supporting Investment in Energy Efficiency in Residential Buildings in the Ukraine – Residential Energy Efficiency Policy Dialogue'. The terms of reference for this task focus on fuel poverty in Ukraine, and particularly on

- a) The household income situation (by income group), structure of expenditures related to housing;
- b) evaluation of the impact of recent and projected energy tariff increases on projected income levels for different income groups (forecast of affordability indicators);
- c) analysis of economic incentives/disincentives, including the existing social safety net for poor and vulnerable consumers (if applicable) that are currently available in Ukraine and relevant to investment in energy efficiency and renewable energy in the residential sector;
- d) and finally estimates for additional needs for targeted social support for low income groups.

Special attention is paid to the rehabilitation of block of flats where there is a high risk that low income groups would 'block' the investments from moving ahead due to the inability to afford their contributions towards the cost of a complex refurbishment.

According to the terms of reference the report concludes with a number of key recommendations for a governmental support scheme that would enable collective decisions/actions and stimulate investments in residential energy efficiency (a social safety net), including a delivery/implementation mechanism. All analysis and recommendations refer to international good practice.

The report continues with previous projects on the topic commissioned by international donor organisations, particularly the previous EBRD Technical Assistance project, conducted by WorleyParsons/ENSI/MDI (WorleyParsons et al. 2011) and the USAID funded Municipal Heating Reform in Ukraine (MHR) Project (USAID 2012; USAID 2013).

STATISTICAL BASIS AND SOURCES

For this study a variety of data sources were applied (details see appendix, p. 52), from international sources particularly the Eurostat and the World Bank database and data from private providers (WIIW, BuildEcon, EECFA), from national sources particularly data from the State Statistics Service of Ukraine (SSSU), including the Household Living Condition Survey, statistical yearbooks on 'Labour in Ukraine' and on 'Social protection in Ukraine', tariff data from market regulation organisations and additional data from literature and press releases.

The SSSU Household Living Condition Survey holds particular significance for this report. A special statistical analysis for the years 2004-2013 was ordered at the Institute for Demography and Social Studies at the National Academy of Sciences of Ukraine, Mr. Volodymyr Sarioglo, on the basis of micro-data on a sample of approx. 10,500 households. This Survey has a

longer history than the EU survey on Incomes and Living Conditions (EU-SILC). Currently the Ukrainian Household Survey is being adapted to be compatible with EU-SILC.

For some analyses in this report converted values in Euro are used. For conversion the official currency rates (yearly average) published by Eurostat and Onvista were used.

For some analysis nominal data series were converted to real values. For this the Consumer Price Index was used as a deflator.

This report would not have the achieved quality without a number of interviews. The authors particularly thank Anton Levytsky from the Municipal Development Institute (MDI) for generously sharing his expertise.

1 Households' income situation

1.1 Population

Ukraine has a population of 45.3 million (43.0 million without Crimea), which is 12% less compared with 1990. 69% live in urban regions (EU average is 73%). The eastern Oblasts Donetsk, Luhans'k, Dnipropetrovsk and Kharkiv have the highest urbanization rates of above 80%. Average households consist of 2.7 persons, which is also close to EU average. The household size in all Oblasts, in urban and rural areas, is quite similar with only few regions with more than 3.0 (e.g. Zakarpattia) or below 2.5 (e.g. Kirovohrad) persons on average. The share of young population in the age group of 15 to 24 years is rapidly decreasing from almost 16% in 2006 to currently only 12.4% (EU average: 11.5%) (World Bank database, Eurostat, BuildEcon).

1.2 Economic indicators

Accuracy of analysis in the following chapters depends on appropriate reference data. Fig. 1-1 provides a simple frame. Data series in Hryvnia (UAH) are misleading due to the strong inflation rate in Ukraine.

Inflation was 10.5% on average in the past decade (2005-2014, Eurostat, WIIW), but with strong fluctuation, with a peak in 2008 with above 25%, but deflation in 2013. The first quarter of 2014 was also close to zero. But since then inflation (y-y) rose to 24% in December 2014, with a yearly average of 11%.

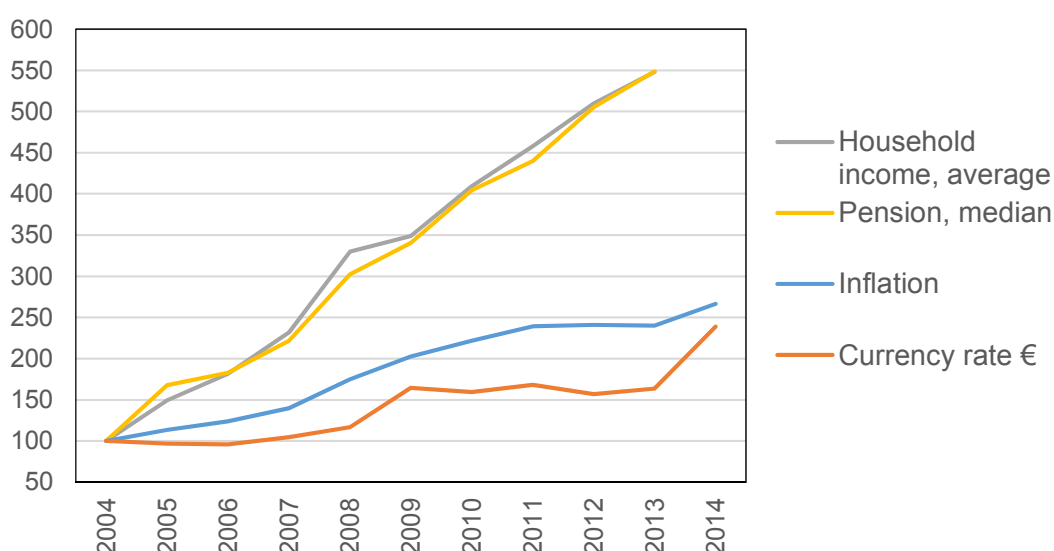


Fig. 1-1 – Basic indicators for Ukraine. Index, 2004=100.
Source: Eurostat, Household Living Condition Survey, IIBW.
Re.: Inflation and currency rate 2014 yearly average.

For international comparison it seems reasonable to convert time series into a hard currency, such as the Euro. The Hryvnia was relatively stable during the 2000s, but devaluated between 2007 and 2009 by more than one third against the Euro and again by almost 50% in 2014 (year average). But astonishing enough, denomination in € and conversion of nominal values with the CPI as deflator comes to rather similar results over time (particularly if additionally considering CPI in the Eurozone). Hence, using converted data to Euro gives an accurate picture about developments in Ukraine in real terms.

Fig. 1-1 also shows the relation of inflation/currency loss against household incomes and pensions. It gives a clear picture of gradually developing prosperity, despite the huge gap to Western countries. Details are presented in chapter 1.4 (p. 10).

It is expected that in the forecast period until 2020 inflation and currency rate against the Euro will basically develop in parallel.

1.3 Wages

Wages in Ukraine show an impressive development. Within one decade (2004-2013) average monthly wages increased more than fivefold in nominal terms from below UAH 600 to almost UAH 3,300 (Table 1). Wages in Kyiv used to be two thirds above the national average, but the gap has decreased to 50%. Between 2004 and 2008 the average yearly increase was at around 30%. It came to a halt with the Global Economic Crisis, but took pace again from 2009 until 2012 with yearly increases of around 15%. For the entire decade the average yearly increase was 21%.

Minimum wages increased by a similar factor of above five within the previous decade from UAH 240 to 1,220 in 2013. Increases were particularly strong until 2010. But later a decrease in dynamics coincided with a low inflation rate. A shrinking rate of lately only 5% of employees receive salaries below the minimum wage.

The unemployment rate was relatively low in 2013 with 7.2%, but increased to 9.4% in 2014 (WIIW).

	2004	2006	2008	2010	2012	2013
Minimum wages (UAH)	237	400	605	922	1,134	1,218
Average wages Ukraine (UAH)	590	1,040	1,810	2,240	3,030	3,270
Average wages Kyiv (UAH)	970	1,730	3,070	3,430	4,610	5,010
Average wages industry (UAH)	740	1,210	2,020	2,580	3,500	
Average wages construction (UAH)	710	1,140	1,830	1,750	2,490	

Table 1: Development of wages in Ukraine. Source: SSSU data; Statistical Yearbook 'Labour in Ukraine', IIBW
Re.: Minimum wages by end of the year. Average wages 2013 by new NACE classification.

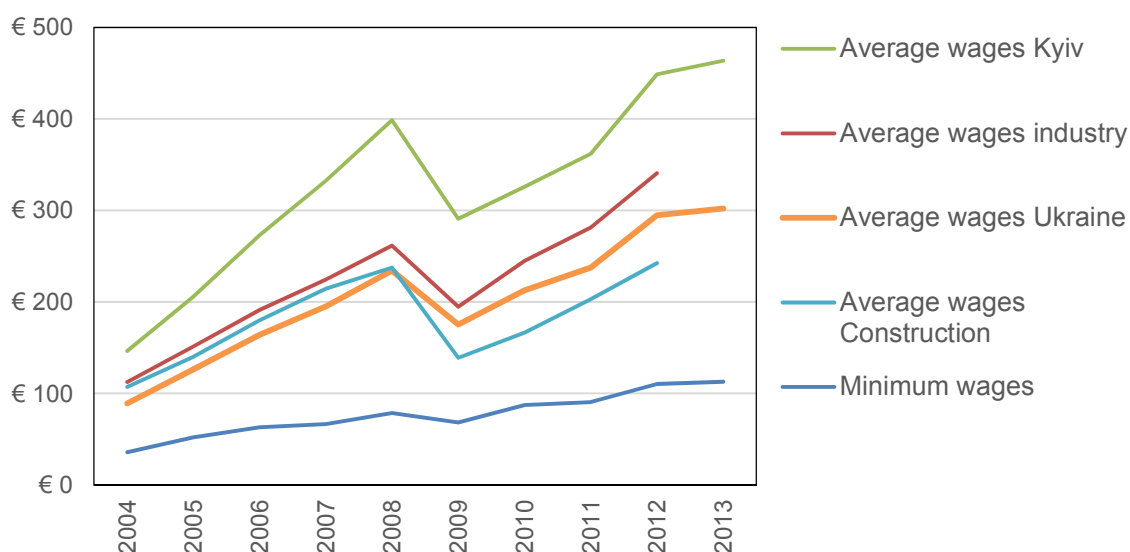


Fig. 1-2 – Development of wages in Ukraine (€ denominated). Source: SSSU data; Statistical Yearbook 'Labour in Ukraine', Eurostat, IDSS, IIBW

Even denominated in € the development of wages in Ukraine is impressive with yearly +16% in the average of the past decade (Fig. 1-2). This includes the year 2009, when due to devaluation of the Hryvna by one third the value decreased accordingly. In 2013 average salaries in Ukraine were slightly above € 300 per month. In Kyiv it was € 460 on average. The minimum wage was € 113.

The situation has changed in 2014 all-out due to repeated devaluation of the Hryvna by almost 50% in year average and more than two third by year end. It is expected that in the forecast period until 2020 wages will approximate the level of 2013 (€ denominated) but will hardly go beyond.

Ukraine had a GDP per capita of € 6,600 in 2013 (PPS), which equaled 26% of EU average (World Bank database, Eurostat). This number has significantly dropped in 2014 due to Hryvna devaluation.

1.4 Household income and consumption

1.4.1 Household incomes

Similar to the wages, the cash incomes of households in Ukraine increased more than fivefold within one decade in nominal terms from UAH 650 to 3,600 in 2013 per month (Table 2). Household cash income is only some 10% higher than average wages. This indicates a relatively low employment quota.

In Kyiv, household incomes are around 50% above the national average. The difference was higher after the Global Economic Crisis, but has been decreasing since then. In rural areas

household incomes are only 10-20% below the national average. This seems to partly derive from the distinct system of social benefits.

Following the National Accounts, social benefits and other social transfers amount to no less than 37% of all incomes. Incomes increased fivefold between 2004 and 2012. So did social benefits, which results in a stable share.

Low incomes (average lowest quartile and decile) increased similarly to the median, which indicates a stable development of inequality in Ukraine (see chapter 1.5, p. 14). In Kyiv, by contrast, low incomes boosted significantly stronger than the average and increased six- to sevenfold within the past decade.

	2004	2006	2008	2010	2012	2013
Ukraine, median (UAH)	650	1,190	2,160	2,680	3,330	3,590
City of Kyiv, median (UAH)	930	1,750	3,640	4,220	4,930	5,180
Cities with >100,000 inh., median (UAH)	750	1,410	2,620	3,060	3,880	4,070
Rural areas (UAH)	580	1,030	1,720	2,240	2,860	3,090
Ukraine, average lowest quartile (UAH)	290	510	910	1,180	1,470	1,600
City of Kyiv, average lowest quartile (UAH)	360	740	1,410	1,560	2,010	2,400
Ukraine, average lowest decile (UAH)	220	390	660	870	1,100	1,190
City of Kyiv, average lowest decile (UAH)	250	480	910	1,060	1,300	1,630

Table 2: Development of cash incomes of households.

Source: Household Living Condition Survey, IDSS, IIBW

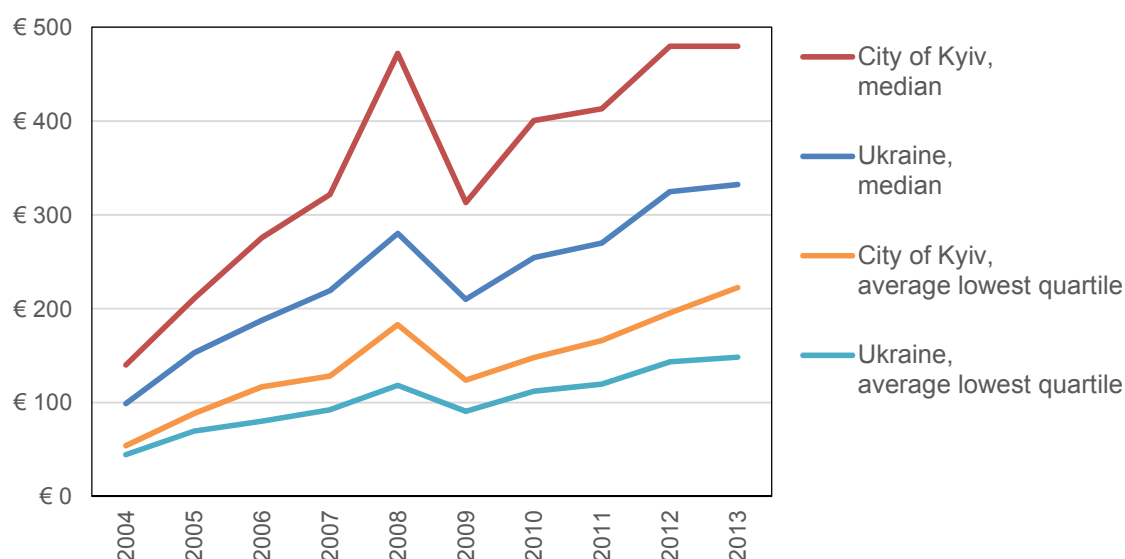


Fig. 1-3 – Development of cash incomes of households (€ denominated).

Source: Household Living Condition Survey, Eurostat, IDSS, IIBW

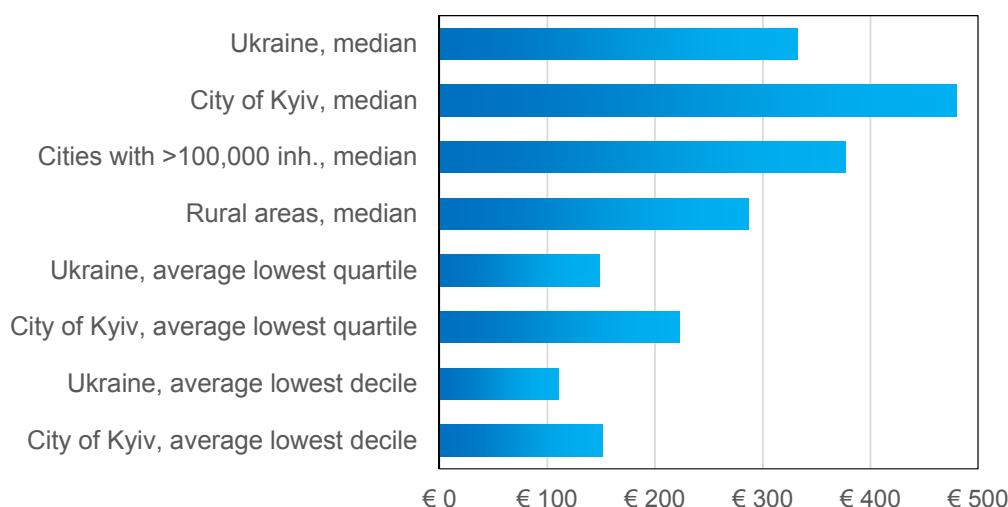


Fig. 1-4 – Cash incomes of households 2013 (€ denominated).
Source: Household Living Condition Survey, Eurostat, IDSS, IIBW.

Even denominated in Euro the development of household incomes is impressive (Fig. 1-3). They were as low as € 100 per month one decade ago, but exceeded € 330 in 2013. In Kyiv average household incomes approach the € 500 threshold.

The heavy devaluation of the Hryvna in 2014 has depressed incomes again in terms of hard currency, as it already happened in 2009. It is expected that in the forecast period until 2020 household incomes will approximate the level of 2008 and 2013 (€ denominated) but will hardly go beyond.

The average household in the lowest quartile could in 2013 dispose over an incomes of € 150 per month, in Kyiv it was € 220 (Fig. 1-4). For the lowest decile it was € 110 in the national average and € 150 in Kyiv.

1.4.2 Pensions

Compared to higher developed economies, all transition countries show a very different division of incomes in terms of age groups. Whereas in Western Europe older age groups have over-

	2004	2006	2008	2010	2012	2013
Average pension per month (UAH)	210	380	630	840	1,050	1,140
Minimum pension per month (UAH)	50	350	470	695	822	894
Average pension, average lowest income quartile	160	310	480	680	860	930
Average pension, average lowest income decile	130	240	390	590	750	810

Table 3: Development of pensions (UAH).

Source: SSSU, Household Living Condition Survey, IDSS, IIBW

Re. Minimum Pension by beginning of the year. Average pensions quartile/decile estimated by data of HLCS.

average incomes, this is quite different in countries such as Ukraine. The average pension of UAH 1,140 (€ 106, 2013, Table 3, Fig. 1-5) is well below the minimum wage of UAH 1,220 (€ 113). A one person pensioner household is below the average lowest decile of total household incomes (see Table 2, p. 11). The average lowest pension quartile is only slightly above the minimum pension of UAH 890 (€ 86), the lowest decile even far below with UAH 810 (€ 75).

Moreover, pensions didn't increase in conjunction with wages and household incomes over the past decade, even though the upturn was considerable with a factor of 3.5.

In Ukraine, a share of 21.4% of population is over 60 years of age (2013). This is below EU average of 24.3%, but above the share of Slovakia, Poland or Russia. The lower share of elderly people in Ukraine, compared to Western Europe, mainly derives from a lower life expectancy. In the age group of 60-64 years Ukraine is above EU average! Ukraine is confronted with a rapidly aging society, combined with extremely low incomes of this population group.

On the other hand, indicators such as 'inequality of incomes' and the Gini Index (chapter 1.5) as well as the structure of housing benefits (chapter 2) suggest a rather cohesive society. The older generation was the loser of this transformation. The majority didn't find access to the job market, entitlements to pensions and other benefits were cut due the collapse of institutions and hyperinflation. Free privatization of social housing had one positive aspect, as it was somehow a compensation for all those losses of the generation, which is today 60+ (Amann/Bezghachina 2013). It seems that for most of them a life in dignity is possible, combining a privatised apartment, very low utility costs, a low pension, some grains from their summer houses and support from relatives. Protection of the elder generation may also have a cultural background, as seniority still has a high significance in Ukrainian society.

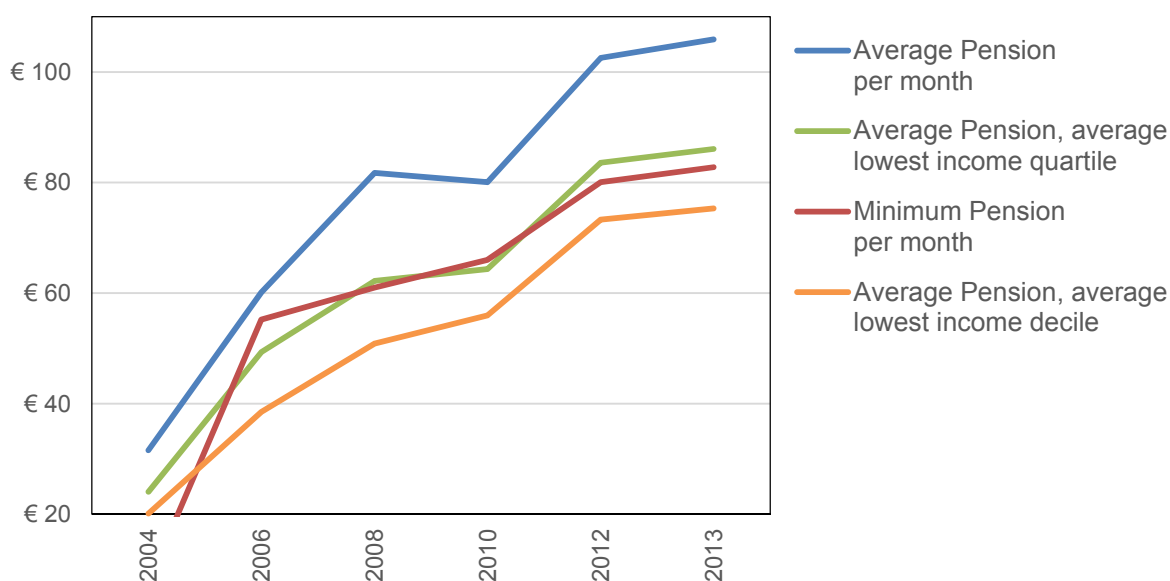


Fig. 1-5 – Development of pensions in UA (€ denominated).

Source: SSSU data; Statistical Yearbook 'Social protection in Ukraine', IDSS, IIBW

1.4.3 Household income and consumption

An important aspect of assessment of housing affordability is the spread between household income and household consumption, as seen in Fig. 1-6. One decade ago, average consumption exceeded incomes considerably. Such conditions are possible with excessive social transfers, contributions from expatriates and a negative savings ratio. For the average income household this situation has changed. The surplus of incomes against consumption was steadily growing and has reached 15% in 2013 (but has decreased again in 2014). The lowest quartile households had -18% lower incomes compared to consumption, but have improved their situation to +3% in 2013. And even the lowest decile income households improved from -24% to -5%. One reason for this development are depressed housing costs (see chapter 1.6). The described development justifies a modification of the housing and utility service scheme with moderate increases over time.

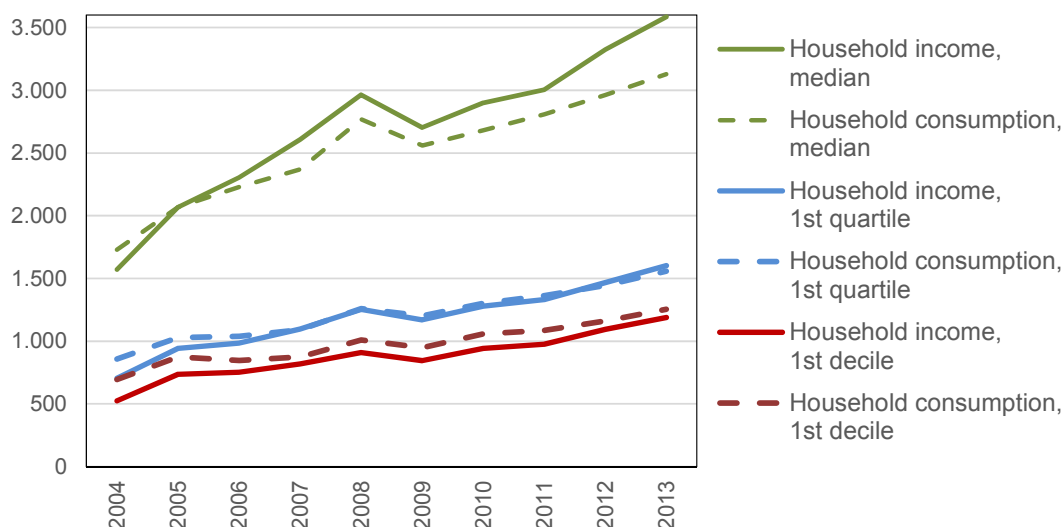


Fig. 1-6 – Household income and household consumption. UAH/month real at prices of 2013.

Source: SSSU, Household Living Condition Survey, IDSS, IIBW.

1.5 Equality / Poverty

The inequality of income ratio (ratio of highest to lowest income quintile) in Ukraine is very low with only 3.3 in 2013, being close to 5 only in 2006. Whereas inequality is decreasing in Ukraine, it is increasing in the average of the EU with currently 5.3. A similar picture gives the Gini Index with below 26 in Ukraine, but almost 31 in the EU average. The income share held by the highest 10% decreased from 30% in 1995 to 21.5% in 2010. The other way round the income share held by the lowest 10% almost doubled from 2.4% in 1995 to 4.4% in 2010 (Eurostat, World Bank database). It requires clarification, whether pensioners are included in these indicators. The group represents more than 20% of the population. At the same time the median pension is below the average of the lowest household income decile.

Data on poverty in Ukraine are not quite consistent. The poverty rate, usually used in the EU, i.e. 60% of the equivalised median income, decreased from 11.1% in 2002 to only 7.8% in 2013, which is below any EU country, and even below the most equal of the Nordic Countries (Iceland, Norway). On the other hand the share of the population living below the minimum subsistence level increased from 17% in 2010 to almost 20% in 2013. But this increase may be explained by a raise in the minimum subsistence level from € 80 to € 103 during that time. Both indicators show that rural areas are much more threatened by poverty than urban areas with a growing gap between urban and rural areas (poverty rate estimated using the Household Living Condition Survey, analysed by IDSS).

Extreme poverty (population with less than \$ 2.00 per day, PPS) used to be a challenge in Ukraine with 8% of the population living in such conditions in 1995. But according to World Bank data this problem has virtually disappeared since then.

Summing up information on demography, GDP per capita, incomes and equality, Ukraine has a rather low income but homogeneous population with a remarkably low level of inequality. Low housing costs seem to play an important role in this respect.

1.6 Housing cost ratio / household fuel cost ratio

1.6.1 European comparison

Data on housing costs and shares of household disposable income spent for housing and energy are of only limited consistency. One key figure with a rather consistent definition all over Europe is the share of private consumption spent for housing and energy within the national accounts. This figure is not based on household surveys but a deduced indicator, including also misleading components such as imputed rents, i.e. notional rents of owners to be paid to themselves. Fig. 1-7 shows time series of selected European countries. A common

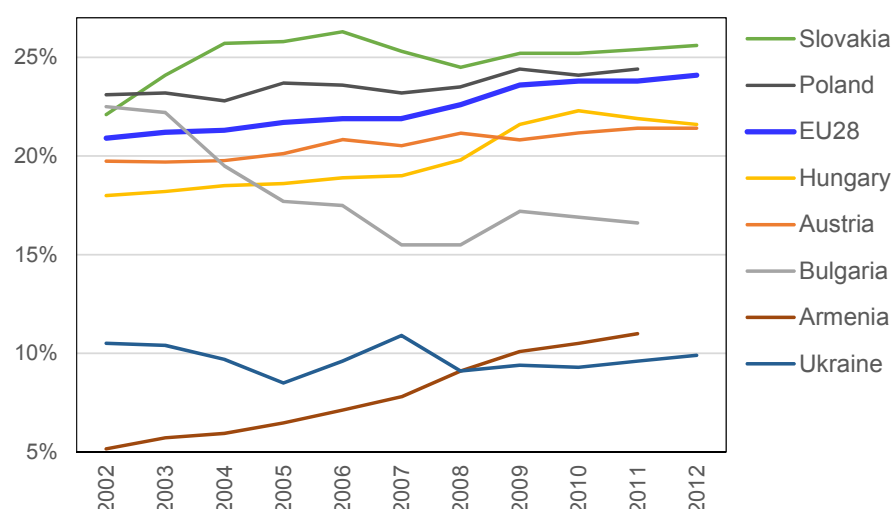


Fig. 1-7 – Housing cost ratios in European Countries (National Accounts=COICOP).

Source: Eurostat, IIBW.

pattern is increasing housing cost ratios in the course of growing maturity of national economies. The reason is decreasing consumption in other spheres, particularly food and clothes. In EU average, the housing cost ratio has increased within one decade from 21% to above 24%. Most CEE EU member states started after transition with low ratios but have experienced over-average increases. Many of them, e.g. Poland or Slovakia, today have housing cost ratios considerably above EU average.

1.6.2 Housing cost rate in Ukraine

Ukraine shows an atypical development with a low and stable level of around 10% housing cost ratio. An important reason is without doubt the depressed development of utility service tariffs (see chapter 1.7).

The following Table 4 and Fig. 1-8 show a similar indicator for Ukraine, deduced from the Household Living Condition Survey, with some important details. Following these data, a slight decrease of the housing cost ratio can be seen, which was between 10% and 11% until 2011, but is below 10% since then.

The housing cost ratio in urban regions is significantly higher than in rural regions. By contrast, energy consumption is higher in rural areas. Here people pay much more for gas, electricity and solid fuel, but almost nothing for district heating, which is the main component of energy consumption in large cities.

The housing cost ratio is fairly similar across low and middle income groups (see chapter 1.7).

1.6.3 Household fuel cost ratio

Housing costs have a basically different structure in transition countries compared to Western countries (see REEPD Ukraine Report 'Inputs to Housing Management Legislation', 2015, Fig. 3-1). Whereas in many Western countries rents and mortgages account for more than 70% of housing costs, this is less than 10% in most CEE countries and also in Ukraine. The reason is mass privatization at strongly discounted prices, hardly developed mass markets for owner-occupied housing, the absence of regular rental markets and unaffordability of financing products. By contrast, housing energy costs have a much higher share of housing costs in those countries. In nominal terms energy costs are rather similar in Western and in CEE countries, but the household income situation differs a lot. This is different for costs of maintenance and repair, which has a similar share, but a much lower level in absolute numbers.

The household fuel costs (being part of the total housing costs) have a similar development as the housing costs with a slight decrease in the long term and a ratio of 5.6% of median household incomes in 2013.

The components of household energy consumption are quite volatile. Electricity has a stable ratio over the past five years, consumption of heating and hot water is significantly decreasing.

	2004	2006	2008	2010	2012	2013			
						Total	City	Town	Rural
Housing cost ratio	12,1%	10,9%	10,2%	9,9%	10,0%	9,6%	10,4%	9,6%	8,0%
Ratio household fuel	7,8%	6,4%	5,5%	5,9%	5,9%	5,6%	5,3%	5,7%	6,3%
Of which:									
Electricity	1,9%	1,6%	1,3%	1,3%	1,4%	1,4%	1,2%	1,5%	1,6%
Gas	2,4%	2,0%	1,7%	2,0%	2,1%	1,9%	1,0%	2,5%	3,0%
Solid fuel	0,9%	0,8%	0,6%	0,6%	0,6%	0,6%	0,1%	0,5%	1,6%
Heating/hot water	2,6%	2,0%	1,9%	2,0%	1,8%	1,7%	3,0%	1,1%	0,0%

Table 4: Household consumption on housing and energy in Ukraine. Share of household income.

Source: SSSU, Household Living Condition Survey, IDSS, IIBW.

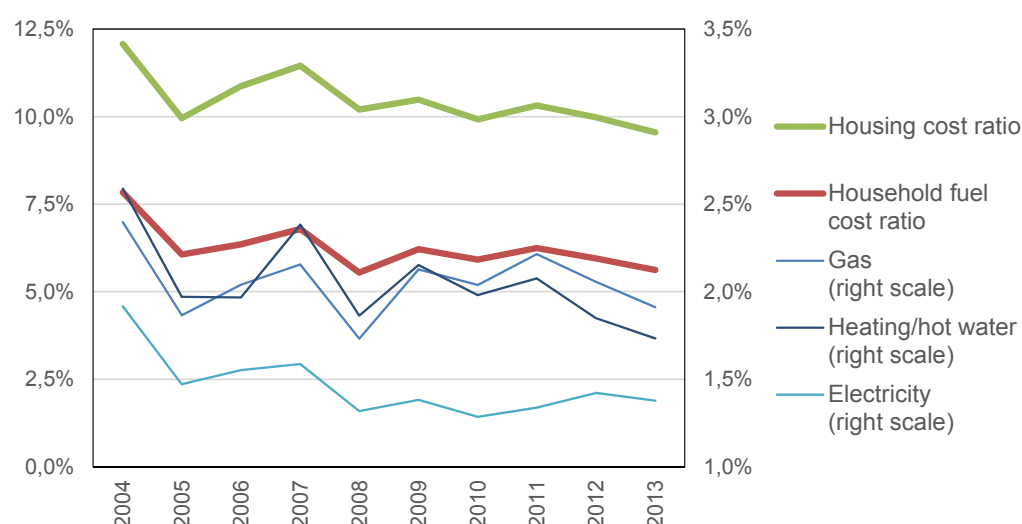


Fig. 1-8 – Household consumption on housing and energy in Ukraine. Share of household income.

Re. Data for 2014 not available yet.

Source: SSSU, Household Living Condition Survey, IDSS, IIBW.

These numbers show clearly the effect of depressed tariffs, and in the case of district heating the declining access rates (see Fig. 1-10).

1.7 Housing and fuel costs for low income households

As seen in the previous chapters, economic heterogeneity is relatively low in Ukraine, both in terms of household incomes (chapter 1.4), tariffs (chapter 1.7) and expenditures on housing and utility services (chapter 1.6). Coherence has increased both in terms of urban-rural difference and income spread. The share of housing and utility expenses of total household expenditures is fairly similar across low and middle income groups, suggesting a positive relation between household income and volume of housing and utility services consumed (UNECE 2013b, 24), or social targeting of subsidies respectively (see chapter 2).

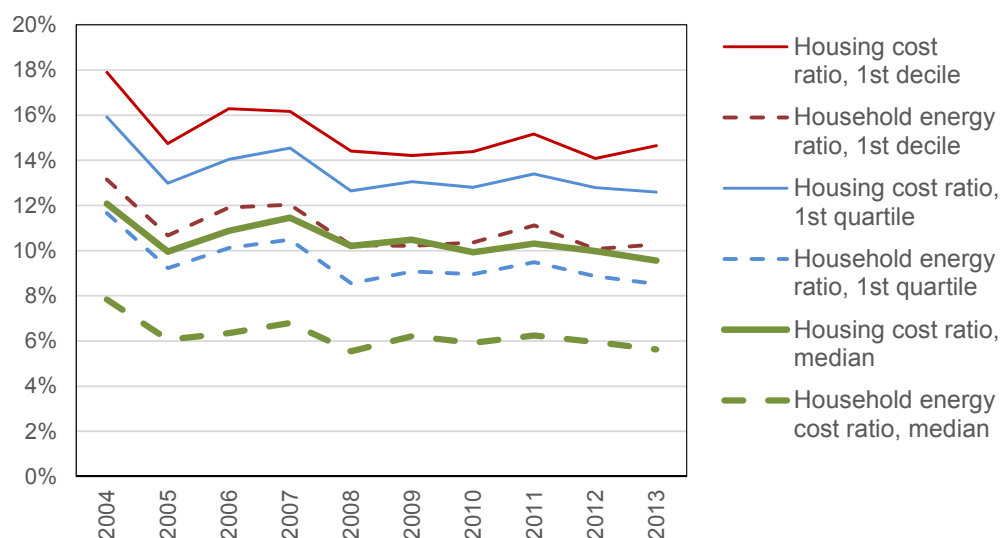


Fig. 1-9 – Housing cost ratio and household fuel cost ratio of different income groups.

Source: SSSU, Household Living Condition Survey, IDSS, IIBW.

Fig. 1-9 shows the development of the housing cost ratio and the household fuel cost ratio of the Ukrainian median income household, compared with the lowest quartile and the lowest decile. Low income households show a similar stable development as the average, both in terms of housing and utility costs. In 2013 the median housing cost ratio was 9.6%, for the lowest quartile it was 12.6% and for the lowest decile 14.7%. For household energy costs the ratios were 5.6%/8.5%/10.3%.

Obviously, low income households have to spend a progressive share of income on housing and household energy. But the present situation in Ukraine differs decisively from European indicators. The average housing cost ratio in the EU is 24% (Fig. 1-7, COICOP), only 4.5% is spent for heating and electricity. EU-SILC documents a median housing cost ratio of 22%, but 41% for households at risk of poverty (below 60% of median equivalent income), which concerns not less than 16% of population.

It is a clear pattern that low-GDP countries have lower housing cost ratios than higher-GDP countries, as a much bigger share of consumption goes to basic needs such as food. But growing incomes and GDP should go hand in hand with an increasing housing cost ratio. This did not happen in the Ukraine in the decade until 2013, to the disadvantage of a sound development of utility providers and the establishment of housing management and maintenance. The current political and economic crisis should not prevent from addressing this erroneous trend.

1.8 Tariffs for utility services

Tariffs for energy and utility services are set according to a variety of legal regulations (Law 'On Housing and Communal Services', Law 'on Electric Energy', Law 'on Natural Gas Market

Functioning Principles'; Law 'on City Development Operations', decree 'on Unified Approach to Setting Tariffs for Housing and Communal Services' and more; WorleyParsons et al. 2011, 66).

Regulatory authority for electricity and gas is the National Electricity Regulation Commission (NERC) and for water and central heating the National Commission on Utility Tariff State Regulation. Aiming at reduction of redundancy of the regulation of utilities, both authorities have been merged in 2014 and are now responsible to the Cabinet of Ministers. It is scheduled to establish a free electricity market by 2017. All other tariffs, including tariffs on maintenance services for buildings, are set by local self-government bodies (UNECE 2013b, 23; Worley Parsons et al. 2011, 66).

Direct subsidies to utility providers are the reason that richer municipalities, such as Kyiv, have much lower utility tariffs compared to many poorer regions (see Table 5). It also resulted in a development that tariffs for residential customers after 2005 didn't increase in the large extent as for budgetary and non-residential costumers. In almost no region of Ukraine do the tariffs cover operational costs. Tariffs for all utilities are far below the level of most European countries, in 2009 they were a factor of more than 8 compared to the average of the European Union for electricity, for water a similar factor with huge varieties between regions, for district heating the factor 2.5 compared to one of the cheapest countries in the EU, Bulgaria, and similarly for gas and waste water services (WorleyParsons et al. 2011, 27-36; UNECE 2013b, 23).

Most tariffs have strongly increased after 2005 (Table 5), but balanced with the inflation rate, increases still seem moderate, and tariffs only slowly approach levels of comparable European countries. More considerations on this topic are discussed in chapter 3 'Impact of energy tariff increases' (p. 32).

	2006	2009	2011	2012	2013	2014	Unit
Electricity, low consumption households and large families	20	24	28	28	28	31	kopecks/kWh, incl. VAT
Electricity for common parts of residential buildings	20	20	30	36	36	42	kopecks/kWh, incl. VAT
Gas, low consumption, with meter	32	48	73	73	73	109	kopecks/m ³ , incl. VAT
District heating, Kyiv	143	131	238	238	238	333	UAH/Gcal, incl. VAT
District heating, weighed average	170	243	278	279	279	373	UAH/Gcal, incl. VAT
Water, Kyiv	1.5	1.6	2.0	2.0	2.0	3.9	UAH/m ³ , incl. VAT
Water, weighed average	1.3	2.5	2.9	3.2	3.2	4.4	UAH/m ³ , incl. VAT
Sewerage, Kyiv	1.1	1.3	1.5	1.5	1.5	3.6	UAH/m ³ , incl. VAT
Sewerage, weighed average	0.8	1.8	2.0	2.2	2.2	3.5	UAH/m ³ , incl. VAT
Dwelling, Kyiv	0.8	1.7	2.6	2.7	2.4	2.4	UAH/m ² , excl. VAT
Dwelling, weighed average	0.6	1.0	1.4	1.3	1.3	1.4	UAH/m ² , excl. VAT

Table 5: Tariffs for utility services in Ukraine in UAH.

Source: Electricity / Gas: NERC; all others: MINREGION, Eurostat, IDSS, IIBW.

Re: Data for 2014 include the increases by midyear for electricity, gas and heating, for other utility services some eastern provinces have not yet implemented changes. Further increases of tariffs for district heating decided by October 2014 are not considered.

Measurement of utilities consumption differs. Metering is only partly introduced, despite the clear evidence of significantly reduced consumption in the case of usage-bound payment. Electricity is in any case metered. Gas meters may be installed individually. It is stimulated by lowered tariffs. Installation of water meters and payment according to real consumption is also organised individually and has to be registered by utility provider (HMO/Zhek, Interview Levytsky).

Utility service providers partly face adverse incentive structures, e.g. payment for district heating corresponding to living space instead of metered consumption. Heating losses are high with 17% in winter and even 29% in summer (WorleyParsons et al. 2011, 85). UNECE (2013b, 22, 23) states that due to inefficient energy pricing, most district heating companies are virtually bankrupt.

As seen in Fig. 1-10, inefficiency of district heating systems causes declining access rates. In a perspective of ten years the total share of households connected to district heating declined from 45% to 38%. This process applies both to urban and rural areas, but for the latter, district heating infrastructure virtually disappeared. Few Oblasts ceased to run district heating infrastructure altogether (Uzshorog). Erosion of access rates further threatens the operativeness of the grids, as running costs have to be covered by a lower number of clients. The district heating infrastructure is regarded an important asset in terms of national economy, security of energy supply, health and environmental protection. Further deterioration and declining access rates may result in a collapse of local networks. A deterrent example is the breakdown of district heating infrastructure in Armenia (Amann/Komendantova 2010). Recognizing this threat the Government of Ukraine has prohibited to cut access to district heating. The reason was only partly maintenance of infrastructure, but concerns of public health, as most multi-

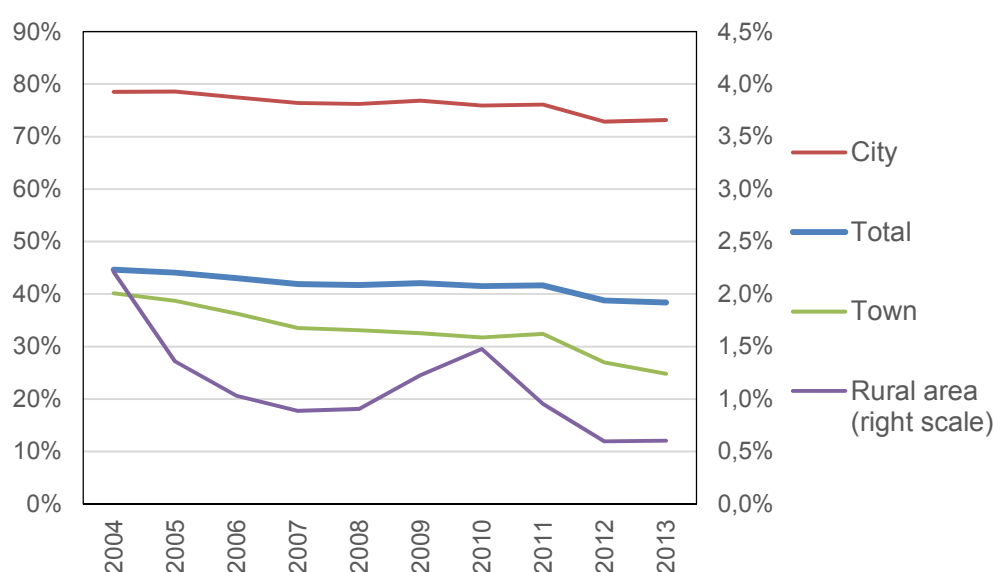


Fig. 1-10 – Share of households with access to district heating.

Source: Household Living Condition Survey, IDSS, IIBW.

apartment buildings have no sufficient chimneys and a change to gas heating mostly implied exhaust fumes through outer walls, affecting neighboring apartments on top.

1.9 Specific income situation multi-apartment buildings vs single family homes

From the 19.4 mill. housing units in Ukraine similar shares of little below 50% are in apartment buildings and single family homes, some 64% of total housing located in urban areas. The share of apartments in big cities with almost 80% is of course much higher than in rural areas with only 5% (UNECE 2013). Rural areas are dominated by single family houses of quite diverse construction typology.

Almost three quarter of flats in multi-apartment buildings are connected to district heating, with even 85% in big cities, but below 10% in rural areas. By contrast virtually all single family houses are heated with individual devices. There is a strong tendency in multi-apartment buildings to disconnect hot water production from district heating, and to produce it with individual electro boilers.

Household incomes in rural areas are 18% below urban areas with a median of UAH 3.940 vs. 3.230 (2013). The spread is higher for low income households with 21% for the lowest quartile (IDSS, Households Living Condition Survey, 2013), but altogether different income groups seem to be quite equally distributed to urban and rural areas, to apartment buildings and single family houses.

1.10 Projection of key indicators until 2020

The context of this report requires forecasts of affordability indicators. This is quite difficult in the present situation of war with massive insecurities concerning all economic indicators. Also, economic forecasts available for most European countries, are presently missing for Ukraine or hardly reliable. The World Bank provides a forecast of GDP growth until 2017, the Austria based WIIW some additional economic data.

The key indicators until 2020 presented in Fig. 1-9 and Table 6 are produced with the following assumptions and methodological approach:

- a) Following the World Bank forecast it is assumed that the political situation is to stabilize shortly with economic recovery within few years.
- b) The development of the currency rate is particularly difficult to predict. It is assumed that the losses of 2014 will remain, but that further devaluation will go down to 5% per year.
- c) Contrary to other sources (WIIW) it is expected that inflation will remain high (after deflation in 2012). It is assumed that the massive devaluation of the Hryvna will be balanced with a high CPI over a couple of years. After 24% inflation rate in 12/2014 (y-y) it is expected that yearly average of 2015 will be at around 17% and in the following years on a level of 10.5% (i.e. 10-years average).

- d) Household incomes had a 10 years (2003-2013) average increase of 23% p.a.; the 5 years (2008-2013) average was 11% (UAH denominated). Following experience with the Hryvna devaluation of 2009 it seems likely that, within a few years, income increases above the long term average will balance the current loss of purchase power. After low income increases below the inflation rate in 2014 and 2015 nominal yearly increases of 15% is assumed. In this way, the household incomes will regain the level of 2013 (UAH 3,600 = € 330 per month) in real terms in 2020.
- e) For low income households the same development of incomes is assumed. In the past, due to comprehensive measures of social protection the inequality of incomes could be kept on a low level. It is expected that low inequality of incomes will maintain. Hence, low income households will regain the real income of 2013 by 2020.
- f) Forecast estimations on housing and household fuel costs are based on given government decisions on future tariff increases and assumptions concerning the development of energy and housing costs. As shown in chapter 1.6 (p. 15) the housing cost ratio in Ukraine was very low until 2013. The year 2014 brought bolt tariff increases, which is estimated with nominally 40% for household energy (26% in real terms) and 20% for maintenance costs (9% in real terms). For 2015 quite low increases are expected due to economic hardship from war. For 2016 to 2020 yearly nominal increases of both indicators of 20% is assumed, as both categories require an upgrade (see recommendations in chapter 3 and 5.1). In this way it is expected that the median housing cost ratio will increase to 15% by 2020. This results in a gradual ascent of housing costs from 340 UAH/month in 2013 to 550 UAH in 2020 (in real terms at prices of 2013). Costs for household energy will increase from UAH 200 to 340 in real terms, for maintenance and repair from UAH 140 to 210 per month.. The housing cost and household fuel cost ratio for low income households will develop similarly on an accordingly higher level.

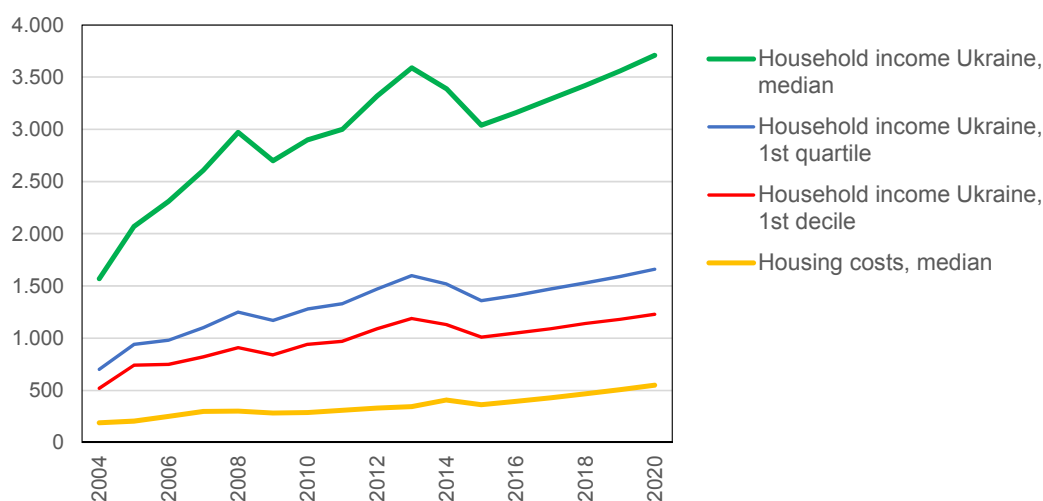


Fig. 1-11 – Projection of key indicators until 2020.
Source: IIBW, Household Living Condition Survey, IDSS.

	2004	2006	2008	2010	2012	2014	2016	2018	2020
Currency rate	6,6	6,3	7,7	10,5	10,3	15,8	19,5	21,5	23,7
GDP growth	12,1%	7,3%	2,3%	4,2%	0,3%	-8,2%	3,5%		
Inflation	9,0%	9,1%	25,2%	9,4%	0,6%	11,0%	10,5%	10,5%	10,5%
CPI Index 2013=100	42	52	73	92	100	111	144	176	215
Household income increase	35,1%	21,6%	42,3%	17,4%	11,3%	5,0%	15,0%	15,0%	15,0%
Household income Ukraine, median, UAH	654	1.188	2.159	2.678	3.334	3.766	4.548	6.014	7.954
Household income Ukraine, median, UAH, real (at prices of 2013)	1.570	2.310	2.970	2.900	3.330	3.390	3.160	3.420	3.710
Household income Ukraine, 1st quartile, UAH	293	507	913	1.181	1.471	1.683	2.032	2.687	3.554
Household income Ukraine, 1st quartile, UAH, real (at prices of 2013)	700	980	1.250	1.280	1.470	1.520	1.410	1.530	1.660
Household income Ukraine, 1st decile, UAH	218	388	662	870	1.096	1.250	1.509	1.995	2.639
Household income Ukraine, 1st decile UAH, real (at prices of 2013)	520	750	910	940	1.090	1.130	1.050	1.140	1.230
Housing cost ratio, median	12,1%	10,9%	10,2%	9,9%	10,0%	12,0%	12,5%	13,6%	15%
Housing cost ratio, 1st quartile	15,9%	14,0%	12,6%	12,8%	12,8%	15,1%	15,8%	17,2%	18,7%
Housing cost ratio, 1st decile	17,9%	16,3%	14,4%	14,4%	14,1%	17,0%	17,7%	19,3%	21,0%
Household fuel ratio, median	7,8%	6,4%	5,5%	5,9%	5,9%	7,5%	7,8%	8,5%	9,3%
Household fuel ratio, 1st quartile	11,7%	10,1%	8,5%	9,0%	8,9%	11,1%	11,6%	12,6%	13,8%
Household fuel ratio, 1st decile	13,1%	11,9%	10,2%	10,4%	10,1%	12,9%	13,5%	14,7%	16,0%
Housing costs, median, UAH	79	129	220	266	333	452	569	819	1180
Housing costs UAH, 1st quartile, UAH	47	71	115	151	188	254	320	461	664
Housing costs UAH, 1st decile UAH	39	63	95	125	154	212	267	385	554
Housing costs, median UAH, real (at prices of 2013)	190	251	302	288	332	407	395	466	550
Housing costs, 1st quartile, UAH, real (at prices of 2013)	112	138	158	164	188	229	223	262	309
Housing costs, 1st decile, UAH, real (at prices of 2013)	94	122	131	136	154	191	186	219	258
Household fuel costs, median, UAH	51	75	120	158	198	282	356	512	737
Household fuel costs nominal yearly increase		27%	16%	12%	6%	40%	20%	20%	20%
Household fuel costs, 1st quartile, UAH	34	51	78	106	130	187	236	340	489
Household fuel costs, 1st decile, UAH	29	46	68	90	110	161	203	293	421
Household fuel costs, median, UAH, real (at prices of 2013)	123	146	164	172	198	254	247	291	343
Household fuel costs, 1st quartile, UAH, real (at prices of 2013)	82	99	107	115	130	169	164	193	228
Household fuel costs, 1st decile, UAH, real (at prices of 2013)	69	90	93	98	110	145	141	166	196
Household maintenance costs, median, UAH	28	54	101	107	134	169	213	307	442
Household maintenance costs nominal yearly increase		41%	42%	10%	10%	20,0%	20,0%	20,0%	20,0%
Household maintenance costs, 1st quartile, UAH	12	20	37	45	58	67	84	121	175
Household maintenance costs, 1st decile, UAH	10	17	28	35	44	51	64	92	133
household maintenance costs, median, UAH, real (at prices of 2013)	67	104	138	116	134	153	148	175	206
household maintenance costs, 1st quartile, UAH, real (at prices of 2013)	30	39	51	49	58	60	59	69	81
household maintenance costs, 1st decile, UAH, real (at prices of 2013)	25	33	38	38	44	46	45	53	62

Table 6: Forecast table of economic indicators until 2020. Source: different sources, IIBW.

Additional forecast estimates are provided in chapter 3.2 (p. 33) concerning effects of tariff increases and in chapter 5.4 (p. 49) concerning effects of the proposed recommendations on state subsidies.

The calculated scenario opens the necessary space for a tariff reform of the energy sector as well as for the implementation of an effective housing management and maintenance scheme (see recommendations). An increase of the housing cost ratio from below 10% to 13% within six years will have according consequences on the state housing subsidies programme. But at the same time the direct subsidies to utility providers will decrease. In total, state expenditure on housing (in real terms) should not rise (see chapter 3).

2 Government housing programmes targeting on housing and fuel poverty

The system of social protection in the field of housing and energy consists of five layers:

- 1) direct subsidies to utility providers;
- 2) privileges to categorised households;
- 3) a housing subsidies programme;
- 4) compensation for increased energy tariffs; and
- 5) public housing.

2.1 Direct subsidies to utility providers

Tariffs for utility services are set up on political reasoning, considering more affordability and popularity of measures than sustainable business conduct of service providers. Hence, virtually all tariffs on utility services in Ukraine are subsidised, electricity and gas mainly from the state budget, district heating, water and other utility services mainly from municipal budgets.

Municipally-owned utility service companies usually perform on cost coverage basis. If the politically agreed fees are insufficient, then bills remain open or the public is to cover the losses. This practice contributes to a politically defined housing cost ratio and hence protects many poor households from hardship. It is responsible for a high level of tariff collection of 90-98% depending on the region (UNECE 2013b, 24). But obviously it contradicts to a real-cost-approach and is vulnerable to false incentives and misuse. Insufficient earnings of utility service providers are a major reason for deficient maintenance, renewal and upgrade of public utility infrastructure.

Direct subsidies prove entire disproportion if utility service providers are privatised, which is mostly the case for energy providers, but also in few cases for other utilities. In those cases they ought to be compensated on basis of a business conduct, which cannot transparently be assessed by the public. A typical case is Kyivenergo, which was privatised, but with a minority share kept by the Municipality of Kyiv. It happened that deficits were compensated by not settling gas bills or by reducing service quality. In this way direct subsidies led to a bargain between private owners and public authorities with big parts of the population as a pawn and media as a referee.

There are reduced tariffs for electricity and gas for households with low consumption and those with children or large families, for gas for those who have installed meters. Differentiation targets at releasing the poorest of population (often elderly people) from overburden of housing costs, and at steering effects such as to install meters and hence to stimulate energy savings.

Calculated on the basis of real full cost-based tariffs, households are estimated to receive an implicit subsidy of roughly € 1 billion per year, which is close to 1% of GDP, and exceeds all

other housing subsidies by far (UNECE 2013b, 22, 23). But as a matter of course those implicit subsidies differ a lot from real public expenditures (similarly to tax benefits in many Western countries). Forcing utility providers to apply tariffs below own costs and far below reinvestment necessities is a cheap measure for the Government to satisfy population and prevent low income households from poverty. But obviously “there ain’t no such thing as a free lunch”. The policy of low tariffs goes at costs of sustainable infrastructure and increases the financial load of future generations. It is a benefit for today at the expense of our children.

Direct subsidies reduce tariffs similarly for all customers and are therefore ineffective in terms of distributive justice. Cases of rich families benefitting from reduced tariffs repeatedly caused high attention in media and the public.

It is widely criticised that discounted tariffs discourage thermal refurbishment projects (UNECE 2013a, 102; UNECE 2013b, 22). But it should be recognised that it is not primarily the insufficient tariff incentives that make residential owners save energy, but rather institutional deficits with non-operative housing management structures. An increase of energy tariffs will not fail to make an impact, as soon as the residents have a realistic perspective to organise thermal refurbishment and to bear financing.

2.2 Privileges to categorised households

Around 14% of Ukraine’s citizens belong to certain categories of people which, by national legislation, pay for all or some utilities at a privileged or discounted rate (UNECE 2013b, 24). Privileges are awarded for social or professional reasons:

- Social reasons are being a veteran, a ‘child of war’ (created in 2004!), a Chernobyl veteran, a pensioner from some professions (army etc.), a family with more than 3 children below 18 years etc.;
- Professional reasons are being an employee of the army, a judge or one of a long list of other professions.

Social privileges are not income-tested, professional privileges are since recently. Only recently limits in useable floor-space have been introduced. There are detailed regulations in place regarding privileged reduction of utility fees by 25, 50, 75 or 100% (Interview Levytsky).

Contrary to many Western countries, privileges are popular in Ukraine. Securing existing and promoting additional privileges has higher political rationale than fighting them. It seems difficult to combat the ‘culture of privileges’.

2.3 Housing subsidies programme

The Ukrainian housing subsidies programme was introduced in 1996, developed within an USAID project (Vaughan 1995). It was the first social program in Ukraine based on means-tested principle. From the very beginning increasing tariffs for utility services was the driver for

introduction. Hence, the programme helped to mitigate payment arrears in this field (EC DG Employment 2009, 71).

With this programme Ukraine followed the model of many European countries, which have introduced means-tested housing allowance schemes since the 1960s, e.g. Austria in 1968. Several CEE countries introduced programmes targeting at support for utility payments in the 1990s, e.g. Slovakia (1999; see REEPD Ukraine Report 'Inputs to Housing Management Legislation', 2014, chapter 3.1).

Similar to the Slovak model (but with a lower income bracket) a simple formula was introduced that payments for utilities, energy and maintenance (including minor repair works, but not payments to a reserve fund) should not exceed 15% of the aggregate income of a household, and for pensioners only 10%. Utility costs are calculated by tariffs or real consumption (metering). The latter causes frequent recalculation of subsidies due to changing utility costs, often monthly. Subsidies are usually applied and awarded for one season, mostly the heating season. Currently some 1.2 million households benefit from housing subsidies in winter, but only 300-400,000 in summer. Each new application entails proof of income eligibility.

The programme targets both urban and rural areas, both on multi-apartment buildings and single family houses. But contrary to most Western countries, these housing allowances are reserved to owner-occupied housing. Private rent is excluded. New owner-occupied apartments are eligible to the programme only after one year. The household may own only one car (Interview Levytsky; CeSPI 2008, 8).

Subsidies relied on rather complicated calculations of eligible useable floor-space. Previously the norm permitted 21m² per household member plus 10m², i.e. 52m² for a couple or 73m² for a 3-person-family. Then it was changed to 35m² for the first family member and additional 10m² for every additional person, i.e. 45m² for a couple or 55m² for a 3-person-family.

Roughly 8% of Ukrainian households benefit from subsidies 'for housing and communal services', which is between 0.9 and 1.4 million households per year (Fig. 2-1). The number fluctuates strongly, but in the perspective of 10 years no clear tendency is visible. By contrast, subsidies 'for reimbursement for the purchase of liquefied natural gas, solid and liquid household fuel stove' are clearly decreasing over time and are utilised meanwhile only by less than 2% of population (Fig. 2-1). This seems to be interlinked with the development of discounted tariffs for gas and district heating. There are some doubts regarding reliability of data on beneficiaries of the housing subsidies programme.

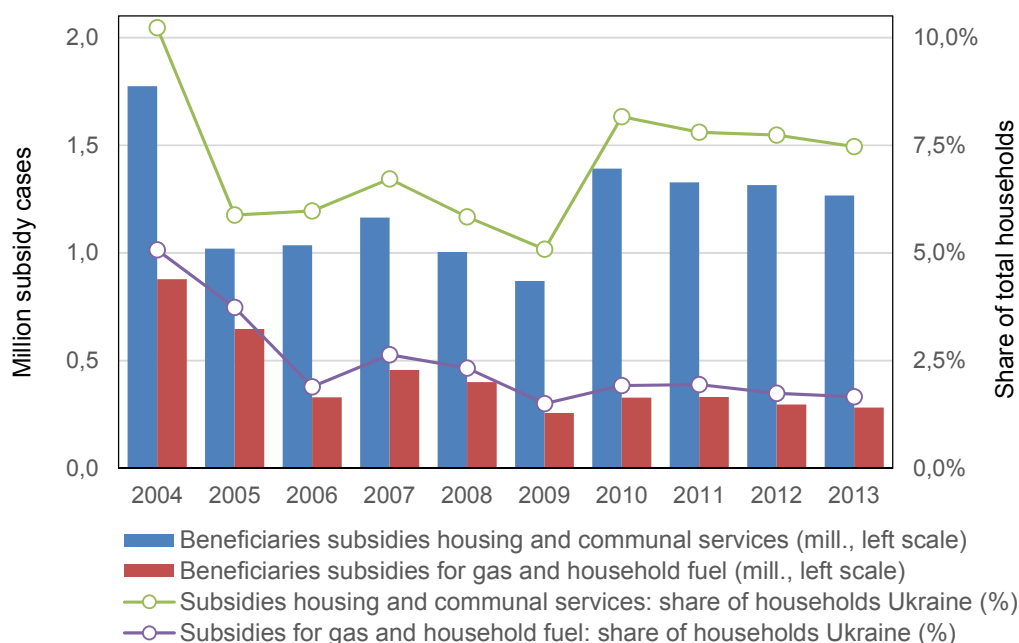


Fig. 2-1 – Subsidies for housing and household fuel in Ukraine.

Source: SSSU; Press release on granting subsidies in Ukraine, IDSS, IIBW.

Re. Subsidies for housing and communal services relate to December of each year and concern water, heat, gas, electricity, sewerage and waste disposal, subsidies for fuel concern liquefied natural gas, solid and liquid fuel.

Utilisation of those two kinds of housing subsidies differs significantly between the Ukrainian Oblasts. Subsidies for housing and communal services are significantly higher in urban areas than in rural (7.9% to 6.4%), whereas subsidies for gas and household fuel are of bigger importance in rural areas with 4.3% of households benefiting from it (Fig. 2-2).

In total only around 1,730 mill. Hryvnia (€ 160 mill., 2013) are spent for subsidies for housing and communal services, and additional 215 mill. Hryvnia (€ 20 mill., 2013) for subsidies for gas and household fuel. This is around UAH 1,400 (€ 130) per case per year on average of subsidies for housing and communal services and UAH 800 (€ 70) per year for the fuel poverty programme.

For easier administrative processing an automated data exchange between utility providers and social offices has been established. By applying for subsidies beneficiaries agree to the data exchange and hence save themselves the hassle of acquiring data.

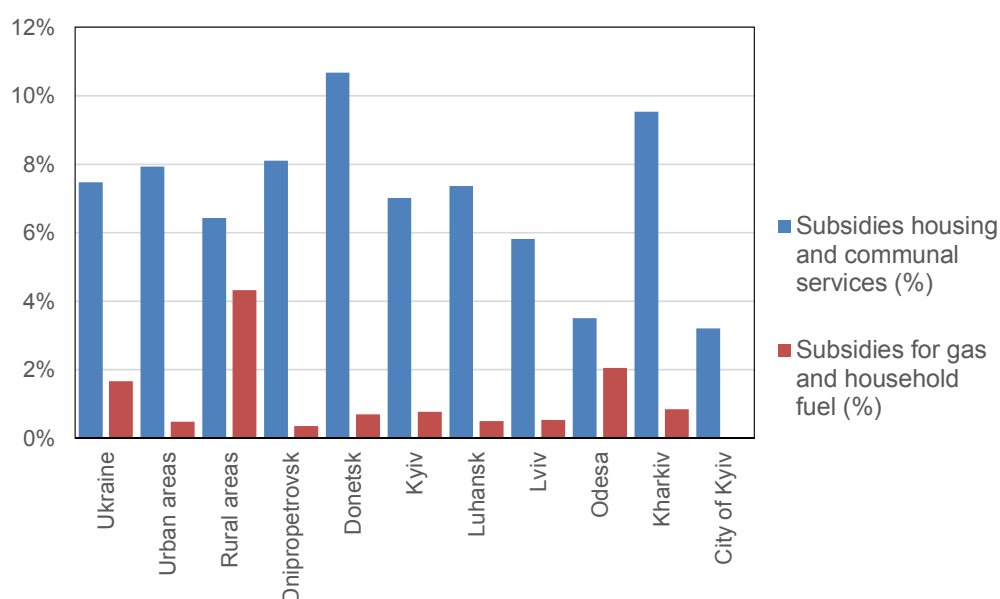


Fig. 2-2 – Share of households receiving housing subsidies in Ukraine 2013.
Source: SSSU; Press release on granting subsidies in Ukraine, IDSS, IIBW.s

Housing subsidies are covered by the state budget. Around half of the beneficiaries of housing subsidies additionally draw on privileges. Hence, avoidance of cumulated subsidies is a specific challenge in practice. The housing subsidies programme has significantly lowered the poverty level in Ukraine (EC DG Employment 2009, 83).

Recently the Ukrainian system of social protection in the field of housing has undergone an important reform (see chapter 2.7, p. 30).

2.4 Compensation for increased energy tariffs

Framework conditions in energy policy of Ukraine and advice from researchers and international organisations led to a substantial increase of energy tariffs in July 2014, e.g. for gas by 40% (devaluation of the Hryvnia in 2014 has annihilated this increase, if denominated in €), with scheduled further increases of 40% in 2015 and each 20% in 2016 and 2017.

This measure was complemented by an additional benefit for families with very low incomes below minimum wages of UAH 1,218 (€ 113) (Government Decree 83/2014). For those households increased tariffs for gas, district heating and hot water will be compensated in full.

This subsidy was politically driven to avoid hardship for poor families in the course of the necessary increase of tariffs. But estimates on the number of families affected by higher tariffs proved highly overdrawn. Three months after tariff reform only a rather small number of applications were approved. Anyway, this measure was scheduled for only one year. From a systematic point of view it makes a lot of sense to include this benefit into the housing subsidies programme.

2.5 Public housing

In socialist time a waiting list system with free access to social housing with only paying utility services was the main measure of social protection in the field of housing. Even though social rental housing construction has almost come to a halt and the existing stock was mostly privatised, the old waiting list system is still in place. But the proportion of needy households (> 1 million) to allocated apartments (< 10,000 p.a. = less than 1%) is quite unfavourable. Households on the waiting list have the option to either wait extremely long for free public housing, or participate in state-supported programmes using their own means (UNECE 2013b, 2, 27).

2.6 Targeting of social benefits / take up rate

Social policy in Ukraine is orientated to provide assistance to a wide range of people (EC DG Employment 2009, 136). Direct subsidies to utility providers have almost no social targeting at all. Privileges are provided to estimated 14% of population, housing subsidies to more than 10% (with a substantial overlap).

At the same time the take up rate for housing subsidies seems to be deficient. Problematic are e.g. young persons not registered as unemployed. The challenge of insufficient utilization of social protection on the one hand and overuse of programmes on the other hand is tackled with a system of social inspectors, who have a right to enter apartments of beneficiaries (interview Levytsky).

2.7 The 2014 reform of social protection policy

In 2014 the Ukrainian system of social protection in the field of housing (see chapter 2.3) experienced important changes. The reform was based on USAID funded projects for the Ministry of Social Policy executed by the Municipal Development Institute (MDI) (USAID 2012, chapter 5; USAID 2013; Interview Levytsky). It was approved as a decree of the Cabinet of Ministers in 8/2014 and came into force by 10/2014. It includes three major changes (Interview Levytsky):

- a) Implementation of social norms for utility services, based on average consumption:
MDI analysed a big set of real utility consumption data (of approx. 55,000 families; USAID 2013) and defined differentiated tariff calculation schemes for electricity, gas, district heating, water and sewerage, which replace the previous calculation of utility payments. The new social norms also include a change of calculation of eligible useable floor space with 35,22m² as a basis plus 13,65m² for every household member, i.e. 62,52m² for a couple or 76,17m² for a 3-person-family. Exceptions may be permitted by municipalities, e.g. for single elderly people in apartments larger than the norm. Based on real average instead of notional consumption, according to MDI, all new norms, except for electricity, are lower than the previous ones. Based on the normed average consumption of utility services, energy and maintenance services the housing benefits are calculated.

b) Norms applicable for all social subsidies:

The new social norms apply (almost) similarly to all layers of social protection in housing, i.e. for the housing subsidies programme, for privileges and for compensation of tariff increase. Only some privileges could not be revised with the legal force of this decree, as they are defined by law.

c) Procedure of subsidy calculation:

Different to the previous formula with housing allowances covering all expenditures exceeding 15% (pensioners 10%) of aggregate household income, the new formula refers progressively to different income levels. It is the same 15% income bracket for families with a twofold minimum income (= 2 x UAH 1,218). This monthly household income of around € 225 (2013) lays between the average first quartile and the median of household cash incomes for Ukraine, but at around the average first quartile for Kyiv (see Fig. 1-3, p. 11). With such an income of € 225 per month a household has to pay € 34 for utility services, energy and housing maintenance at maximum (=15% of household income). With higher incomes the share of own contributions increases in a linear curve, with lower incomes it decreases. In combination with the new social norms this formula makes sure that better-off households would not benefit from state subsidies. Very low income household, on the other hand, may be subsidised even for their entire housing costs. The new model provides for better social targeting with a rather simple formula. It also stimulates utility savings, as subsidy are unlinked to real consumption. Hence, lower consumption results in a real cash benefit to households.

Estimates on the budgetary consequences of this reform are difficult. Anton Levytsky from MDI predicts a reduction of public expenditures for privileges, but an increase of housing subsidies. He also outlines further reform steps:

- unifying norms (done);
- binding privileges to income;
- provide households with a choice: either privilege or housing subsidies;
- delete privileges altogether (politically not endorsed).

The World Bank has approved a \$ 300 million loan for the Social Safety Net Modernization Project in Ukraine in July 2014 to expand a targeted social safety net program that will help the most vulnerable and socially excluded people.

3 Impact of energy tariff increases

Changes of utility costs in big steps are necessarily a challenge for the population, but also for policy makers, who have to convince voters for the inevitability of such measures. But despite the hot public debate on the volume of tariff increases, the development should be assessed differently.

3.1 Tariff increases 2014

The tariff increases in 2014 were based on models of paying capacity of population performed by MDI in the context of the USAID Municipal Heating Reform Project (USAID 2012).

Necessary tariff increases were, already formerly, realised by quite creative solutions, such as progressive prices for households with over-average consumption or much higher tariffs for non-residential customers. Higher tariffs were also introduced for customers without metering to stimulate awareness of dependence of costs from consumption (gas, water).

Table 5 (p. 19) shows the nominal development of selected tariffs for utility services. In Fig. 3-1 (below) the same numbers are converted to real values on the basis of the CPI of Ukraine as deflator and calibrated to an Index (2006=100), including the strong increases by midyear 2014 (further increases for district heating tariffs in October 2014 could not be considered). In chapter 1.7 the big gap between utility costs in Ukraine and Western Europe of a factor of three to eight is illustrated. The curves clearly demonstrate that convergence of utility service tariffs with Western countries proceeds only slowly.

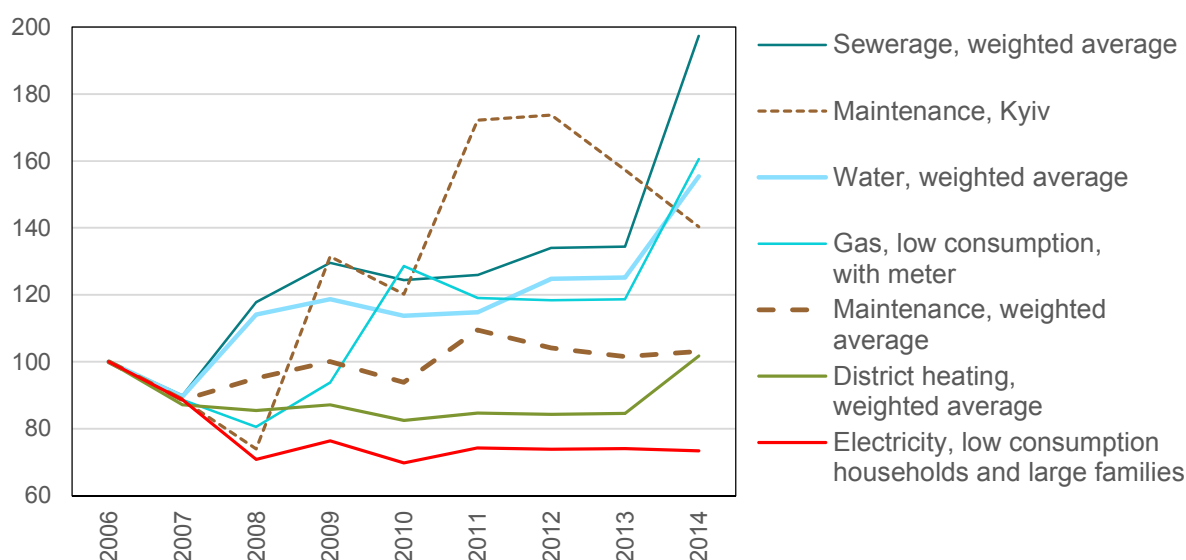


Fig. 3-1 – Index tariffs for utility services in Ukraine, real (CPI deflator), 2006=100.

Source: Electricity / Gas: NERC; all others: MINREGION, Eurostat, IDSS, IIBW.

Re: Data for 2014 include the increases by midyear for electricity, gas and heating, for other utility services some eastern provinces have not yet implemented changes.

Further increases of tariffs for district heating decided by October 2014 are not considered.

Electricity tariffs, at least those for low consumption households and large families, are today lower than 10 years ago in real terms. District heating and maintenance services are on a similar level. Tariffs for gas, water and sewerage have increased by 50% to 100% in a ten year period in real terms. The biggest part of these increases appeared in 2014. It is very likely that devaluation of the Hryvnia in 2014 will be balanced within one or two years by an increasing inflation rate. Currently (10/2014 y-y) CPI is already at almost 20%. But this effect can hardly be anticipated in calculations such as shown in Fig. 3-1. For 2014 a yearly average CPI of 12% is assumed.

Tariff increases in the past and today have been handled in the context of public debts for energy imports, affordability issues for some groups of population, sustainable business models of utility service providers and political opportunism. In this difficult netting of interests the government with its regulators succeeded in keeping the housing cost ratio on a very low and stable level.

Perpetuation of low tariffs for low consumption households is only understandable on the background of the specific situation of the older generation in Ukraine (see analysis p. 13). With average pensions of hardly above € 100 per month they have a very limited 'affordability buffer'. And no representative of a public authority can afford to push parts of this generation into misery.

3.2 Further tariff increases, consequences on housing subsidies

The government of Ukraine has announced further bolt increases of utility tariffs in yearly intervals. The intended increases of 40% and 20% respectively are absolutely necessary, but should continue.

3.2.1 Assumptions

On the basis of the projection of key indicators in chapter 1.10 (p. 21) the author provides an expert estimation about the development of utility costs and subsidies until 2020, based on the following assumptions:

- The results are calculated in €, on the one hand because of the dependency of energy costs on international market prices, on the other hand to balance the expected high inflation in Ukraine.
- The following forecast calculations are expert estimates, based on the assumptions listed in chapter 1.10.
- Housing and household energy tariffs will increase as described in Table 6 (p. 23).
- Housing subsidies programme (see chapter 2.3, p. 26) will be substantially affected from increasing housing and utility costs. It is assumed that the number of beneficiaries will increase in the same extent as the housing cost ratio (see below, Fig. 3-2), i.e. to 9% to 12% of all households. At the same time the average subsidy will increase by 20%.

3.2.2 Results

The model calculation and economic forecast until 2020 allows for the following conclusions:

a) Potentials for energy tariff reform:

The assumed tariff development result in a threefold increase of household energy tariffs until 2020, compared to 2013, in nominal terms, i.e. 20% per year from 2016 on, which is slightly above the average of the past 10 years, but almost twice the expected inflation rate. This will enable the overdue approximation of energy costs to an international level.

b) Potentials to reduce direct subsidies to utility providers:

The total turnover of housing energy in Ukraine will grow from approx. € 3,800 mill. in 2013 (and a depression in 2014 and 2015) to around € 6,000 mill. in 2020. This will relieve direct subsidies to utility providers, which are estimated by € 1,000 mill per year (UNECE 2013b, 22, 23, see chapter 2.1), and at the same time enable utility service providers to modernize the defective infrastructure.

c) Potentials to upgrade the housing management and maintenance scheme:

Similar to household energy, household payments for maintenance, repair, rents and mortgages are expected to increase threefold in nominal terms until 2020, compared to 2013. In real terms, the assumed increase of housing and utility costs is only 8.5% per year for the median household. In 2020 the housing cost ratio will be at 15% for a median household, at 19% for the lowest quartile household and at 21% for the lowest 10% income households (Fig. 3-2). This increase is expected to occur with the introduction of obligatory repair funds and financing schemes for comprehensive thermal refurbishment (see recommendations, chapter 5).

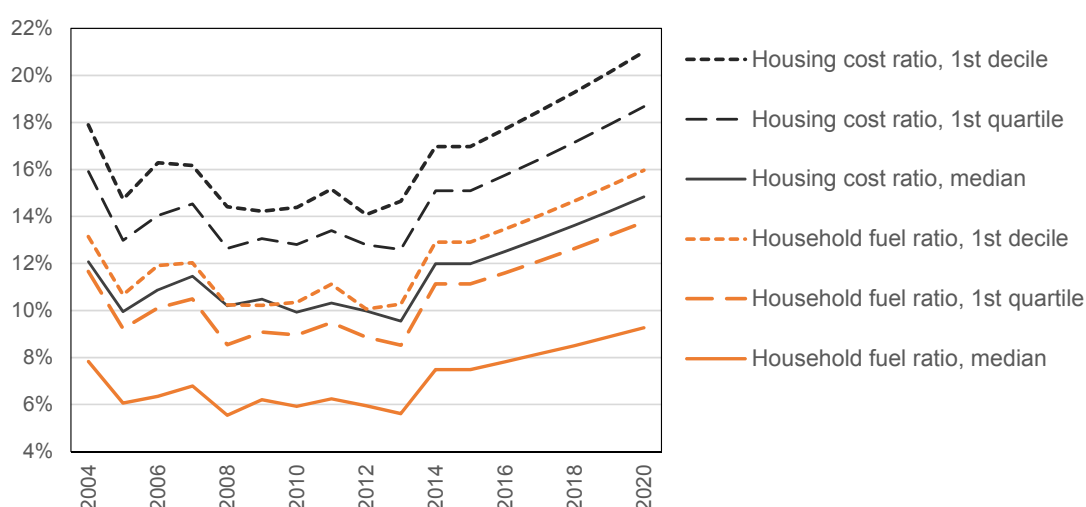


Fig. 3-2 – Projection of housing and household energy cost ratio until 2020.

Source: IIBW, Household Living Condition Survey, IDSS.

d) Expansion of the housing subsidies programme:

Under the assumptions described above, both subsidies for housing and utility services and for household energy will almost double from € 25 and 20 mill. respectively in 2013 to € 47 / 39 mill. in 2020. This programme should also be extended concerning consideration of endowments to repair funds and repayment of refurbishment loans (see chapter 5.4, p. 49).

4 Affordability of residential energy efficiency investments

Analysis of barriers for energy efficiency investments is covered by another current E7 report within the REEPD_Ukraine project (E7 2015). That report contains a grant calibration calculation which evaluates cost effectiveness of different energy efficiency measures under Ukrainian framework conditions. By contrast, the model calculations presented below relate those energy efficiency measures to household incomes with a particular focus on low income households. They evaluate to which degree households are able to finance thermal refurbishment projects.

4.1 Model calculations of refurbishment projects

Table 7 (p. 38) shows calculations of different types of refurbishments, with the following assumptions:

- Calculations are based on data from 2013 and at prices of 2013, as 2014 is highly atypical due to strong Hryvna devaluation and high inflation. Forecast estimates are provided in chapter 3.2 and 5.4.
- Different input data (costs of refurbishment projects etc.) are coordinated with the running E7 LEME/LESI package within the REEPD_Ukraine project (CO 2 'Financial Instruments - Preparatory Technical Assistance'). Calculated refurbishment costs include some insecurities due to differences in building typologies, particularly for single family houses.
- Calculations are also coordinated with those in the E7/IIBW report "Inputs to Housing Management Legislation" (E7/IIBW 2015b, chapter 4.3).
- Calculations target at the introduction of SEFFs – Sustainable Energy Finance Facilities, basically as grants, in one model (c) also as soft loan.
- The exemplified six models (4 for multi-apartment buildings, 2 for single family houses) seem to cover the most relevant constellations.
- In Table 8 (p. 39), Model b) is subject to a sensitivity analysis concerning different scenarios on utility costs, loan maturities and interest rates.

The model calculations in Table 7 allow for the following **conclusions**:

- a) The model calculations include a multitude of predictions and variables. Therefore the results **cannot be precise**. But they allow for a preliminary assessment of different types of refurbishment and affordability of financing.
- b) **Capital market conditions** in Ukraine are currently not favorable for financing capital repair of residential buildings with interest rates close to 20% (in 2014 even above). Banks require extensive collaterals with a loan-to-value ratio (LTV) of not more than 65%. This makes models without equity of owners (model a) unfeasible.
- c) On the other hand, **refurbishment costs** are far below Western levels. With costs of around 1,500 UAH/m² useable floor space (at prices of 2013) it is possible to thermally

rehabilitate facades, roofs, windows, doors and in favourable cases also the interior heating system (see LEME/LESI package).

- d) Nevertheless it will be impossible for the vast majority of multi-apartment buildings to afford comprehensive thermal rehabilitation at once. It requires preparatory measures, for the multi-apartment sector particularly the introduction of **repair funds** and obligatory **refurbishment plans** (see recommendations b) and d), p. 44 f.).
- e) Thermal refurbishment projects are hardly possible without **equity of owners**. The only reasonable way to build up equity of all owners of an apartment building is endowments to a repair fund. As exemplified in the E7/IIBW study on “housing management legislation” (E7/IIBW 2015b), savings of **5 UAH/m²** (at prices of 2013, CPI indexed) for a period of 7 years will be enough to cover around one third of the costs of comprehensive rehabilitation. Equity is indispensable not only to lower loan repayments, but also to meet LTV requirements and ease assessment of bankability of refurbishment projects. Endowments to repair funds will be unaffordable for a part of the population. It is therefore proposed to include such endowments into the existing housing subsidies programme (see recommendation c), p. 44).
- f) Affordability of thermal refurbishment projects requires an additional grant component. Therefore, **SEFF grants** are a qualified instrument to stimulate thermal refurbishment. They significantly lower the financial burden of households to repay refurbishment loans and improve affordability. It seems reasonable to start with higher shares (e.g. 30% for comprehensive rehabilitation in multi-apartment buildings, 20% for single family homes, >10% for single measures and/or individual owners, see model calculation) and possible lower financial support subsequently. Soft loans (with interest rates e.g. on a multi-year average of CPI, structured e.g. with annuity grants, see model c)¹ seem to have lower effects on affordability, compared to grants. They have the additional disadvantage of the necessity of long term management of annuity grants.
- g) Additional support for low income households seems inevitable. None of the calculated models is affordable for low household income groups. Due to mass housing privatization in the 1990s and aging population such ‘**poor owners**’ have a significant share in virtually all multi-apartment buildings in Ukraine. Given average costs for utility services of around 10% of household incomes (12% in 2014, 15% for the lowest income quartile, 17% for the lowest decile), the payment ability for additional instalments for refurbishment loans is rather limited. Detailed calculations are provided in chapter 5.4. In the best model (b) SEFF financed thermal refurbishment requires additional subsidies for low income households for approx. 25% of owners. It is expected that the average allowance should cover 30-40% of loan redemption.

¹ In subsidy programmes of many Western Countries and IFIs, such as CEB, interest rates of soft loans are oriented at the CPI.

	Model a)	Model b)	Model c)	Model d)	Model e)	Model f)	Sources/explanation/assumptions
Location	City	City	City	City	Rural	Rural	
Building type	Apartment	Apartment	Apartment	Apartment	House	House	
Refurbishment type	Capital repair, no repair funds, SEFF grant 20%, capital market financing	Same as a), with repair funds, SEFF grant 30%	Same as b), but with soft loan instead grant	Same as b), but with reduced refurbishment package; lower SEFF grant	Capital repair, SEFF grant 20%, capital market financing	Same as e), but reduced refurbishment package, more own equity; lower SEFF grant	
Refurbishment costs (UAH/m ²)	1.520	1.520	1.520	760	2.760	1.380	Inputs LEME/LESI project ¹⁾
Own in-kind contributions (%)					30%	30%	Inconsistent performance of construction
Own equity (%)	0%	20%	20%	20%	10%	30%	Repair funds
Grant	20%	30%		20%	20%	10%	SEFF
Loan volume (UAH/m ²)	1.220	760	1.220	460	1.100	410	
Loan period (years)	10 y	10 y	10 y	7 y	10 y	7 y	
Interest rate	17,6%	17,6%	8,0%	17,6%	17,6%	17,6%	EECFA (2014) ¹⁾
Monthly repayment (UAH/m ²)	19,0	11,8	14,0	8,5	17,1	7,5	Constant payments, constant interest rates ²⁾
Apartment size	52 m ²	52 m ²	52 m ²	52 m ²	84 m ²	84 m ²	Inputs LEME/LESI project
Total instalments (UAH/month)	990	610	730	440	1.450	630	
Anticipated heating costs, median / 1 st quartile / 1 st decile (UAH/month)	373 247 213	373 247 213	373 247 213	373 247 213	373 247 213	373 247 213	Household Living Condition Survey, IDSS, IIBW
Potential savings of energy costs	59%	59%	59%	36%	71%	43%	Inputs LEME/LESI project
Estimated anticipated savings of energy costs, m/1q/1d (UAH/month)	220 150 130	220 150 130	220 150 130	130 90 80	270 180 150	160 110 90	
Median household income (UAH/month)	4.070	4.070	4.070	4.070	3.090	3.090	
% of median household income	19%	10%	13%	8%	38%	15%	
Resulting housing cost ratio median	28%	19%	22%	17%	48%	25%	
1st quartile household income (UAH/month)	1.880	1.880	1.880	1.880	1.390	1.390	
% of 1st quartile household income	45%	24%	31%	19%	91%	37%	
Resulting housing cost ratio 1st quartile	57%	37%	43%	31%	104%	50%	
1st decile household income (UAH/month)	1.330	1.330	1.330	1.330	1.110	1.110	
% of 1st decile household income	65%	36%	45%	27%	117%	49%	
Resulting housing cost ratio 1st decile	79%	51%	60%	42%	132%	63%	
Assessment	not bankable	best model	no advantages to model b)	applicable	only feasible for high income H.	applicable	
Additional housing subsidies required		for approx. 25% of households	for approx. 1/3 of households	for approx. 20% of households		for a significant share of households	

Table 7: Model calculations for different types of refurbishment

Source: E7/IIBW, SSSU, different sources

Re: ¹⁾ Data at prizes of 2013, interest rate of 2013.

²⁾ Monthly repayments can be effectively reduced by CPI-adjusted payment schemes.

	Model b)	Model b-1	Model b-2	Model b-3	Model b-4	Model b-5	Model b-6	Model b-7
Refurbishment type	Capital re- pair, repair funds, SEFF grant 30%, capital mar- ket financing	Higher anticipated household energy costs	Real household energy costs (2013)	Different loan maturity	Different loan maturity	Different loan maturity	Repres. interest rate of late 2014	Optimistic forecast on interest rate
Refurbishment costs (UAH/m ²)	1.520	1.520	1.520	1.520	1.520	1.520	1.520	1.520
Own in-kind contribu- tions (%)								
Own equity (%)	20%	20%	20%	20%	20%	20%	20%	20%
Grant	30%	30%	30%	30%	30%	30%	30%	30%
Loan volume (UAH/m ²)	760	760	760	760	760	760	760	760
Loan period (years)	10 y	10 y	10 y	7 y	5 y	3 y	10 y	10 y
Interst rate	17,6%	17,6%	17,6%	17,6%	17,6%	17,6%	22,0%	12,0%
Monthly repayment (UAH/m ²)	11,8	11,8	11,8	14,0	17,1	24,6	13,2	10,0
Apartment size	52 m ²	52 m ²	52 m ²	52 m ²	52 m ²	52 m ²	52 m ²	52 m ²
Total instalments (UAH/month)	610	610	610	730	890	1.280	690	520
Anticipated heating costs (UAH/month)	373 247 213	560 372 320	224 148 128	373 247 213	373 247 213	373 247 213	373 247 213	373 247 213
Potential savings of energy costs	59%	59%	59%	59%	59%	59%	59%	59%
Estimated anticipated savings of energy costs (UAH/month)	220 150 130	330 220 190	130 90 80	220 150 130	220 150 130	220 150 130	220 150 130	220 150 130
Median household income (UAH/month)	4.070	4.070	4.070	4.070	4.070	4.070	4.070	4.070
% of median household income	10%	7%	12%	13%	16%	26%	12%	7%
Resulting housing cost ratio median	19%	16%	21%	22%	26%	36%	21%	17%
1st quartile household income (UAH/month)	1.880	1.880	1.880	1.880	1.880	1.880	1.880	1.880
% of 1st quartile household income	24%	21%	28%	31%	39%	60%	29%	20%
Resulting housing cost ratio 1st quartile	37%	33%	40%	43%	52%	73%	41%	32%
1st decile household income (UAH/month)	1.330	1.330	1.330	1.330	1.330	1.330	1.330	1.330
% of 1 decile household income	36%	32%	40%	45%	57%	86%	42%	29%
Resulting housing cost ratio 1st decile	51%	46%	55%	60%	72%	101%	57%	44%
Assessment	best model	Only with very strong fuel price increase	at fuel prices of 2013	applicable	not applicable	not applicable	applicable	favourable
Additional housing subsidies required	for approx. 25% of households	for approx. 25% of households	for approx. 30% of households	for approx. 1/3 of households	for >40% of households		for approx. 1/3 of households	for approx. 20% of households

Table 8: Sensitivity analysis on Model b) for different framework conditions

Source: E7/IBW, different sources

- h) Thermal refurbishment of multi-apartment buildings results in much lower payment obligations for tenants compared to **single family homes**. By contrast, a multitude of owners in apartment blocks makes it more difficult to collect installments from all. Due to different construction typologies, refurbishment costs of single family houses differ much more than for large buildings. In effect, both sectors have similar high potentials.
- i) Savings of energy costs are an important layer of financing thermal refurbishment. The model calculations include real data of household fuel costs (from the Households Living Condition Survey), which are for the lowest income decile 40% below the median household. Main reasons are smaller floor space, different consumer behavior and progressive tariffs for low income households. This issue has consequences on rebound effects in terms of consumer behavior, as seen in many Western countries. Hence, savings of energy have a lower significance for low income households, compared to higher-income neighbours.
- j) The **model with the best performance is b)**, including a 30% SEFF grant and 10 years maturity of the refurbishment loan. Under conditions of 2013 this model is affordable for the vast majority of owners. Additional social protection is required for estimated 25% of owners. For this model a sensitivity analysis on different framework conditions was performed.
- k) Table 8 varies Model b) in terms of utility costs, loan maturities and interest rates in a **sensitivity analysis**. Models b-1 considers higher anticipated **household energy costs** (baseline scenario with expected real costs in 2020, see Table 6, p. 23), based on an estimate of 150% of current gas tariffs, hence thermal refurbishment increases savings of the energy bill. Model b-2 considers real housing energy costs of 2013 and therefore lowers savings of the energy bill. Models b-3, b-4 and b-5 vary the **maturity of refurbishment loans**. Compared to the baseline scenario of 10 years maturity, 7 years is still applicable, but shorter maturities are not. Finally, models b-6 and b-7 alternate the capital market **interest rate**, with the result, that even interest rates above the baseline scenario of 17.6% are applicable. Lower interest rates approaching Western European levels of course relieve applicability, but do not dispense the government from additional support for low income households.
- l) The model calculations present a static view for year 1 of financing, but in the forecast calculations of Table 10 (p. 50) the development until 2020 is anticipated. Payment conditions will change over time. It is expected that tariffs will increase stronger than incomes. At the same time, loan repayment will probably be at fixed rates (Ukrainian banks will not be able to administer CPI indexed repayments). Thus, in real terms decreasing loan repayments may balance increasing utility tariffs. Under the assumption of the model calculation, real housing costs (including utility costs) of an average beneficiary (who does not qualify for housing allowances) will be at **15 to 20%** in the phase of saving for future repair (obligatory repair funds), and at around **30%** in the phase of repayment of the refurbishment loan. Due to increasing household incomes the housing cost ratio will decrease to 25% within 5 years.

- m) In chapter 1.4.3 (p. 14) it is described that average household incomes have exceeded household consumption by 15% in 2013, but have decreased since then. It is assumed that a refurbishment programme is feasible even with an increase of the housing cost ratio above this “**affordability buffer**”. Housing refurbishment effects considerable long term benefits and an increase of the intrinsic value of the property. For this reason households are expected to be willing to reduce consumption in other areas to afford housing refurbishment. But obviously it is indispensable to support low income households by including repayments into the housing subsidies programme.
- n) For today, the potential of projects qualified for **SEFF financing** is regarded rather limited: as repair funds are not in place yet, hardly any multi-apartment buildings have acquired own equity so far, with the exception of an unknown number of HOA organised buildings with well-off tenants. For the multi-apartment sector a **multi-year preparatory phase** should be provided, with other measures to be implemented first (housing management, repair funds, change of the housing subsidies programme). In the sector of single family houses the potential for quick action seems higher. But for comprehensive rehabilitation works this concerns only well-off owners. Such rehabilitation projects may serve as showcases for further implementation also for middle-class house owners. For low income house owners only measures with a very high cost-return-profile seem applicable, e.g. replacement of electric appliances or single windows and doors.
- o) It is difficult to estimate additional state expenditure for inclusion of those projects into the existing **housing subsidies programme**, as it depends on multiple variables (number of projects, composition of income groups within buildings, cost caps etc.). But two important framework conditions limit the necessary state commitment: a) Additional housing allowances for loan repayment should in the beginning be limited to SEFF financed projects; b) In most cases such projects can be executed only after several years of savings; Hence, additional housing allowances will be required only in medium term. Nevertheless, endowments to repair funds should be included into social protection schemes at once (cost estimate see chapter 5.4, p. 49).

4.2 Additional needs for specific household groups

Housing policy reform targeting at low income groups should not only focus on affordability, reduced consumption of utilities and energy efficiency. Other important aspects, which are not reflected in the model calculation, should be considered:

- Measures to counter deprivation of low income households caused by improper housing conditions (EC DG Employment 2009, 84). Social isolation is a major threat for public health and welfare. It reduces the ability of the persons concerned to take part in the labour market and hence converts an asset for society into a liability. Housing management, development of neighbourhoods and comprehensive housing refurbishment projects should also include aspects of social engineering to create a sense of community and to combat deprivation of single tenants.

- Measures for disabled and handicapped people are still hardly discussed in Ukraine. Taking the rapidly aging population it is necessary to bring this topic to the political agenda. Housing refurbishment should not only target energy efficiency, but also elimination of barriers, particularly in common parts of buildings (slopes instead of stairs, elevators, pedestals, wider doors).
- Access of Roma population to housing: Because of extreme poverty, Roma in Ukraine face serious obstacles in the realization of the right to adequate housing (EC DG Employment 2009, 88). Solving the housing situation of this population group is a particular challenge.

5 Recommendations

5.1 Policy related recommendations

Analyses in the previous chapters allow for the following main recommendations to improve affordability of energy efficiency investments by measures of policy reform:

a) Adopt pricing mechanisms for energy and utility tariffs

The mechanisms of setting utility tariffs is mainly responsible for the very low and stable housing cost ratio in Ukraine and affordability of housing even for the poor and for the elderly generation. But it also perpetuates the big gap of utility costs between Ukraine and Western European countries, including all negative consequences, such as very high direct subsidies to utility providers with low social targeting, poor maintenance of infrastructure, low investments, low incentives for housing refurbishment, etc.

The analysis of pricing systems in other countries allow for recommendations the way out of this dilemma:

- Binding tariff valorization on an index, e.g. CPI or minimum wages (which is significantly higher than CPI) helps to keep regular increases of utility tariffs off political debates. It may be difficult to introduce such a mechanism at first. But in following years it will be much easier to continue. It may be required that high steps of inflation are not immediately followed by cost increases of utility services, because this could lead to a cost spiral. This effect can be avoided by referring to a floating average of e.g. past three years. The MDI models of paying capacity of population (USAID 2012) seem appropriate to increase tariffs in a sensible way. Valorization even may be linked with a multiplier to gradually approach international levels of utility prices or, in the long run, to introduce free markets.
- The existing practice of progressive pricing of utility services linked to the volume of consumption produces adequate incentives and helps poor households, given the evidence of smaller apartments and different consumer behavior. As a result, the lowest income decile has 40% lower household energy costs, compared to the median household. A link of tariffs with other leverage effects such as implementation of meters is also regarded useful, as control over own consumption is a particularly effective tool for energy efficiency.
- Replacement of depressed tariffs with housing subsidies: Tariffs are hardly socially targeted. By contrast, the housing subsidies programme is means-tested. A stronger government commitment to the housing subsidies programme, including a substantial increase of budgets, would allow reducing implicit subsidies on tariffs, without threatening the affordability of vulnerable groups of the population. Possible savings of implicit subsidies to utility providers are in any case much higher than increased public expenditure for housing allowances. But political understanding of economic rationality of balancing implicit with explicit subsidies has to be developed.

b) Stimulate cash-flows in residential buildings, build up reserve funds

The success story of Slovakia in enforcing thermal refurbishment of residential buildings under preconditions similar to Ukraine (voluntary owners' associations) basically depends on increasing willingness of owners to contribute to repair funds. The willingness of banks to finance refurbishment projects basically depends on an assessment of cash-flows within a residential building, particularly concerning maintenance and repair funds.

Hence, it is for three reasons essential to stimulate owners to build up such funds. Firstly, after some time the owners and/or housing managers will be able to dispose over own equity. Experience in many other countries prove that equity is a most important precondition for the willingness of owners to decide for refurbishment projects and its financing. Secondly, payments in a repair fund create cash-flows which are an important basis for assessment by banks of repayment ability of owners of residential buildings. Thirdly, without sufficient own equity financing will fail due to LTV-regulations of banks.

Such payments may be stimulated by inclusion into the housing subsidies programme (targeting at poor owners, see recommendation c), below), tax incentives (e.g. deductability from income tax), legal prescriptions and awareness raising programmes (e.g. on good practice).

c) Include payments for housing refurbishment into the housing subsidies programme

The current reform of the housing subsidies programme (see chapter 2.7) has made social targeting much more efficient and has set effective incentives to lower utility consumption.

But, not including payments for refurbishment (repair funds, refurbishment loans), it brought no improvement regarding the problem of 'poor owners' who in very many cases make decisions on housing refurbishment impossible, as they have no 'affordability buffer' to bear additional costs for financing such measures.

In the majority of European countries public subsidy programmes for promotion of thermal refurbishment focus on allowances for low income households, e.g. in Hungary, Lithuania, Slovakia. Subsidies target e.g. utility payments, repayment of mortgage loans or interests. In Slovakia, low-income households may receive social benefits covering cost of rent and utility services exceeding 30% of their household income. An important eligibility criterion is whether rents and utility services have previously been paid in full. Additionally there are allowances targeting at refurbishment projects in place (UNECE 2013a, 107; 18th Informal Housing Ministers Meeting, 2010, 79). Means-tested subsidies for low-income households are a cornerstone for Slovakia's successful housing refurbishment strategy (see REEPD Ukraine Report 'Inputs to Housing Management Legislation', 2014, chapter 3.1).

A simple model, which is systematically consistent with the existing housing subsidies programme, may be applied for Ukraine, by re-defining housing costs eligible for housing allowances. Additionally to existing components it should include the following:

1. SEFF loan repayments: To kick-start the EBRD financial facilities for residential energy efficiency it is recommended to include repayments into the housing subsidies programme. Due to the limited volume of SEFF financing this first step will not require a complete reform of the social protection scheme.
2. Regular endowments to repair funds, in addition to maintenance and minor repair costs, which are subject to the tariff system and hence already included in eligible costs. This measure requires reforms in housing management, as recommended in the REEPD Ukraine Report 'Inputs to Housing Management Legislation' (E7/IIBW 2015b). It is recommended to make repair funds obligatory for all residential buildings (not only for HOAs), but leave the volume of monthly savings up to the decision of the General Meeting of Owners. Savings of 5 UAH/m² per month (at prices of 2013, CPI indexed) suffice to collect around one third of costs of comprehensive thermal rehabilitation within seven years (see chapter 4.1, p. 36). The government should establish a system to include endowments to repair funds of 5 UAH/m² (indexed to 2013 prices) per month into eligible costs for social protection, according to the existing housing subsidies programme. Such subsidies for low income households should be dependent on an operative housing management and on the existence of a refurbishment plan for the building.
3. Redemption of refurbishment loans should be included to eligible costs within the housing subsidies programme, linked with strict definition of financing conditions and quality of rehabilitation. The following criteria are recommended:
 - Valid decisions of the General Meeting of Owners;
 - Comprehensive refurbishment with rehabilitation of at least 3 thermally relevant building elements (facade, windows, doors, roof, interior heating grid);
 - Reduced refurbishment package (single measures) only if following a comprehensive refurbishment plan and at least 30% reduction of heating demand;
 - Quality standards of building products according to the LEME/LESI list;
 - Calculatory proof of at least 50% reduction of heating demand;
 - EPC before and after refurbishment;
 - For the initial phase obligatory link to SEFF financing and project approval;
 - Loan period of at least 5 years;
 - Interest rate capped according to NBU regulations;
 - Collaterals as arranged by the contractual parties;
 - Cap of eligible monthly repayments not below 15 UAH/m² useable floor space for comprehensive rehabilitation projects and not below 10 UAH/m² for reduced refurbishment packages (at prices of 2013, see Table 7, p. 38);
 - Both for multi-apartment buildings and single family houses.
4. Eligible housing costs: According to the current housing subsidy scheme, all housing costs exceeding a distinct share of household incomes are covered by housing allowances, e.g. for a household with double minimum income (approx. € 225) it is 15% and 10% for pensioners respectively. It seems inappropriate in terms of distributive justice and too

costly for the public, if additional household expenditures for refinancing refurbishment projects would be covered by subsidies in full. A reasonable solution could be the following:

- Unconditional inclusion of payments into repair funds as eligible housing costs up to a defined cap, to stimulate cash-flows in all residential buildings;
- Inclusion of loan repayment in combination with an increase of the remaining reasonable own costs, e.g. by 5 percentage point, i.e. for double minimum income households from 15% to 20%, to reflect the higher intrinsic value of a refurbished building;
- Additional incentive for early movers, to stimulate start-up of the initiative, e.g. a lower multiplier for the first two years.

Chapter 5.4 provides for cost estimates for additional public expenditure linked to an expansion of the housing subsidies programme.

d) Streamline social protection in the field of housing and energy

The current reform of the housing subsidies programme (chapter 2.3, p. 26 and 2.7, p. 30) was an important step into the right direction. There seem to be great potential to erase overlaps between the different layers of social protection, to improve social targeting of the tools and to reduce public expenditures. Direct subsidies to utility providers (see chapter 2.1, p. 25) are very costly to the state with estimated 1.0% of GDP, and have low social targeting. 'Privileges to categorised households' (see chapter 2.2, p. 26) seem to be a heritage from former times which are held dear. For the beneficiaries privileges are perceived as acquired rights from pre-transition times ('grandfathering'). But it should be clear that this mechanism is a relic of the past. Any new entitlement of such 'privileges' should be stopped. The means-tested housing subsidies programme is able to substitute all new approaching eligibility. A step-by-step replacement of direct subsidies to utility providers and privileges by means-tested housing allowances would release state budgets substantially and would provide financial maneuvering mass for the described housing policy reforms.

e) Re-establish housing management regulations

Institutional deficits with non-operative housing management structures are seen as a main barrier to enforce energy efficiency in the residential sector (see chapter 4, p. 36). IIBW and the E7 team within the REEPD Ukraine project have executed a report on 'Housing Management Legislation' (E7/IIBW 2015b), with comprehensive recommendations for re-establishing housing management as a business case, including a new Model Contract between apartment owners and management companies. It regulates not only obligatory housing management for each and every multi-apartment building and the establishment of repair funds, but also the obligation of a housing manager to organise the preparation of a comprehensive refurbishment plan. This tool is expected to help less well-off owners to rehabilitate their buildings step by step with the right measures in the right succession.

5.2 Recommendations for EBRD Policy Dialogue and SEFF implementation

The successful implementation of Sustainable Energy Financing Facilities (SEFF) requires collateral action in different policy fields, as illustrated in chapter 5.1. EBRD may effectively stimulate such reforms in some policy fields by linking them to SEFF implementation. The following table prioritises the recommended policy action and proposes division of tasks and responsibilities:

Time	Measure	Responsible stakeholders	Summary bullet points
Short/medium term (within 2 years)	Establishment of housing management regulations (Recomm. 5.1 d)	Minregion, supported by EBRD Policy Dialogue	- Primary legislation - Model Contract - Obligatory housing management - Obligatory repair funds - Refurbishment plan - NBU regulations on common accounts
	Stimulation of cash-flows in residential buildings (Recomm. 5.1 b)	Minregion (not recommended for EBRD Policy Dialogue, covered by other donor organisations)	- Stimulation of savings for thermal refurbishment - Ensure security of accounts - Stimulation of private housing management companies - Awareness raising
	Inclusion of payments for housing refurbishment into the housing subsidies programme (Recomm. 5.1 c), p. 44)	Government: Minregion, Ministry of Social Policy; Recommended for EBRD Policy Dialogue due to close link to SEFF implementation; need for cooperation with USAID	- In a first step inclusion of SEFF loan repayment into the housing subsidies programme - Inclusion of endowments to repair funds into the housing subsidies programme - Inclusion of repayments of all kinds of refurbishment loans - Detailing of data analysis on the basis of administrative data - Detailing of model calculations on beneficiaries and public costs - Draft legal regulations - Policy dialogue / stakeholder process for awareness raising of the necessity of such reform - Joint action of Minregion and the Ministry of Social Policy
	Preparation of SEFF pilot projects	SEFF (Technical Assistance)	- Test of technical features and performance - Test of financial instruments - Test of housing management tools (decision making, refurbishment plan) - Test of social protection

medium term (within 4 years)	Broad SEFF implementation	SEFF and partner banks	▪ Proof of feasibility ▪ Full regional coverage
	Adoption of pricing mechanisms for energy and utility tariffs (Recomm. 5.1 a)	Government; not recommended for EBRD Policy Dialogue	▪ Use of next reform to introduce new mechanism with automatic CPI adjustment + leverage
	Streamlining of social protection in the field of housing and energy (Recomm. 5.1 1.1, p. 47)	Government; not recommended for EBRD Policy Dialogue	▪ Step-by-step extension of the housing subsidies programme; ▪ Phase-out of 'privileges to categorised households' (see chapter 2.2, p. 26) ▪ Step-by-step reduction of direct subsidies to utility providers (see chapter 2.1, p. 25) ▪ Continuous evaluation of results, seizing opportunities to improve
	Reform of municipal HMOs	Government, municipalities; not recommended for EBRD Policy Dialogue	▪ Make them competitive in housing management
Long term	Broad implementation of thermal housing rehabilitation without IFI support	Government	

Table 9: Prioritization of policy actions.

Source: E7/IIBW

5.3 Estimate of market volume for thermal refurbishment

The market for thermal refurbishment is huge. Construction costs are estimated at around 1,500 UAH/m², i.e. UAH 80,000 per apartment in average (at prices of 2013 = 140 €/m²; € 7,300 per apartment). The estimated 2,000 SEFF funded refurbishment units in 2015 have an investment volume of € 15 mill. But this is only a drop in the bucket. Once the framework conditions for broad state implementation of thermal refurbishment is in place and a refurbishment rate of 2% p.a. is achieved, we talk about a market volume of € 3,000 mill. per year. By comparison, the total construction output in the residential sector for 2013 was € 3,900 mill. It would mean a tenfold boom of construction output in residential renovation (EECFA, 2014), with according effects on employment, as renovation is more labor intensive compared to new construction.

A boom of thermal rehabilitation of the housing stock is a realistic opportunity to achieve within few years. Main requirements are described in this report: a reform of the system of housing and energy related subsidies, implementation of an effective housing management scheme, stimulation of cash-flows in residential buildings by establishing of repair funds and finally effective financing tools. SEFFs can be an important trigger to kick-start the reform.

5.4 Implications on the housing subsidies programme

The recommendations listed above seem indispensable to achieve thermal housing rehabilitation in Ukraine in a broad scale. Recommendation c) addresses the existing housing subsidies programme. The consultant recommends to focus on this topic as part of the EBRD Policy Dialogue. Therefore, in this chapter the financial implications for state subsidies are estimated, based on the following assumptions (Table 10):

- The following forecast calculations are expert estimates, based on the assumptions listed in chapter 1.10 and 3.2.1.
- The introduction of obligatory repair funds and inclusion of endowments into the social protection scheme will have minor effects in 2015 with assumed 10,000 households applying to this model. But as an obligation and covered by housing subsidies it is expected that until 2020 half of all households in multi-apartment buildings will start saving, i.e. 5 mill. households. A share of 14-17% of those households will be eligible for housing subsidies (estimated half more than the regular subsidies for housing and communal services). For the beneficiaries the average subsidy will be approx. 30% of the endowment (1/3 above the level of the regular housing subsidy scheme).
- The inclusion of refurbishment loan repayment into the housing subsidies programme will concern an insignificant number of cases for the next at least three years (estimated 2,000 to 10,000 cases p.a.). This will probably mostly be pilot projects financed with SEFF funds. Subsequently the programme is expected to expand. The calculations are based on the assumption that until 2020 a refurbishment rate of 2% of the apartment stock will be achieved, which is 400,000 housing units per year. For the pilot projects, estimated one third of households should be included to the social protection scheme. Later on this share may be reduced to 20%, which is still significantly above the regular housing subsidies scheme.
- Redemptions for refurbishment loans may be capped with 15 UAH/m² per month (CPI-indexed). For the beneficiaries the average subsidy is estimated at 37% of the endowment (2/3 above the level of the regular housing subsidy scheme).

The proposed measures are expected to have the following results:

a) Expansion of the housing subsidies programme: repair funds

Following the assumptions described above, the inclusion of endowments to repair funds will increase the volume of the housing subsidies programme by € 4 mill. in 2016. This volume will more than double each of the following years, up to € 46 mill. in 2020 (which will be close to the peak).

b) Expansion of the housing subsidies programme: refurbishment loans

Following the assumptions described above, the inclusion of refurbishment payments into the housing subsidies programme will cause insignificant additional state expenditures for the period, when only (SEFF funded) pilot projects are concerned. Once mortgage financed refurbishment projects are implemented in a broader scale of up to 2% of the total housing stock per year, the additionally required subsidies sum up to approx. € 34 mill. in 2020. It

is important to realise that subsidies are required not only for new projects, but also for those being in the refinancing phase. Therefore, this stream of subsidies will continue to increase for another 5 to 7 years.

c) Higher state expenditures for the housing subsidies programme:

Altogether, the housing subsidies programme is expected to expand from around € 50 mill. in 2013 (only subsidies for housing and communal services and household energy) to around € 170 mill. in 2020 (increases of the regular housing subsidies programme + expansion to cover repair fund endowments and redemptions of refurbishment funds).

d) Overall reduction of housing and household energy related subsidies:

Following the assumptions in chapter 3.2.2 current direct subsidies to utility providers of estimated € 1,000 mill. may be reduced to a large extent until 2020. The expansion of the housing subsidies programme will therefore be more than compensated with the reduction of direct subsidies to utility providers.

e) Increase of the housing cost ratio:

The introduction of obligatory refurbishment funds and thermal refurbishment schemes obviously will increase the housing cost ratio in Ukraine. Based on a median housing cost ratio of 10% in 2013, it will increase in the individual case to roughly 17% by endowment of a repair fund with 5 UAH/m² per month. In the individual case of comprehensive refurbishment projects the median housing cost ratio (incl. utilities, repair funds and loan repayment) is estimated at 30% in the first year, but decreasing to 25% within five years. For the median income household the social protection scheme does not apply. Such levels seem adequate for individual cases (not for national averages), particularly in the face of an effective subsidy scheme for low income households.

	2015	2016	2017	2018	2019	2020
No. households with repair funds, 1,000	10	500	1000	2330	3660	5000
Share of beneficiaries	14%	15%	15%	16%	17%	17%
Endowment repair fund, €/household p.a.	161	165	168	171	175	178
Additional median housing costs (% of household income)	7%	6%	6%	5%	5%	5%
Subsidies per case, € p.a.	48	49	50	51	52	53
Subsidies total, mill. €	0,1	3,6	8	19	32	46
No. of housing units (partly SEFF funded), 1,000	2	5	10	140	270	400
Share of beneficiaries	33%	33%	33%	20%	20%	20%
redemption, € p.a. (CPI indexed)	503	513	524	534	545	556
Total median housing cost ratio (incl. utilities, repair funds, loan repayment)	30%	29%	28%	27%	26%	25%
Subsidies per case, € p.a.	187	191	195	199	203	207
Subsidies total, mill. €	0,1	0,4	1,1	7	18	34

Table 10: Forecast table inclusion of repair funds and refurbishment loans into the social protection scheme.

Source: IIBW

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