



Association
Energy Efficient Cities
of Ukraine

**The value of the Display[®] Campaign
as a voluntary energy and environmental performance
certification system of buildings
to the sustainable municipal energy management in
Ukraine**

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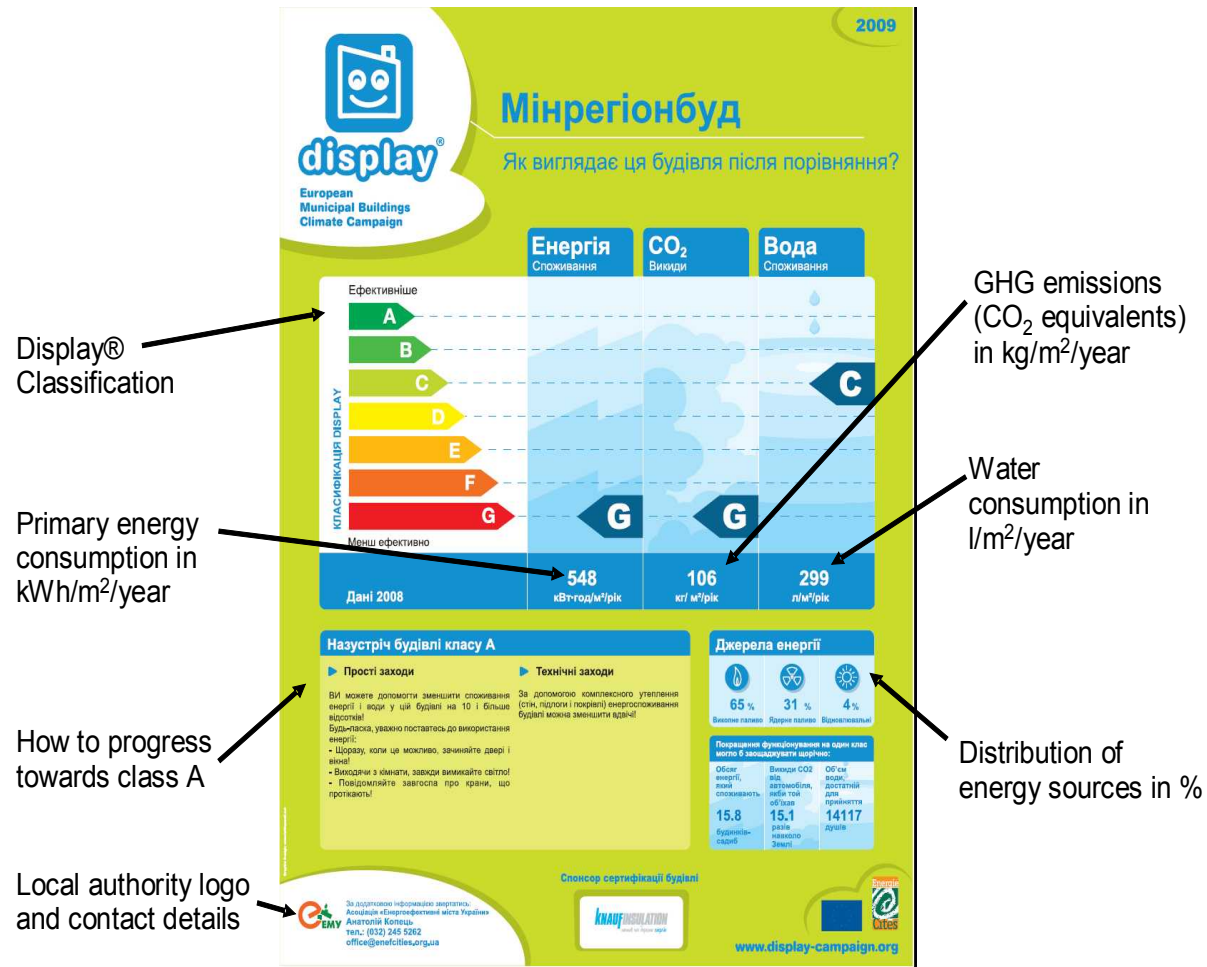
The Display[®] Campaign and its instruments (I)

- The Display[®] Campaign is a European energy and environmental performance certification system of buildings launched in 2003 as a bottom-up initiative of the 'Energy-Cities' – European association of local authorities promoting local sustainable energy policies – with the aim to encourage local authorities to publicly demonstrate the energy and environmental performances of their buildings, in order to convince their citizens to stop wasting energy and water.
- Display[®] certificates give particular buildings a rating on a scale from 'A' (best) to 'G' (worst), based on the actual amount of metered energy and water used by the property over a period of twelve months.
- Building upon the Danish classification system of buildings according to their purposes, it divides edifices into fifteen categories, taking into account that the demand for energy and water is varied in different types of entities, e.g. the same integrated energy ratio of e.g. 430 kWh/m²/year would mean poor energy performance of a hospital (class 'E'), excellent energy efficiency of a swimming pool (class 'A') and extreme inefficiency of a school (class 'G').

The Display® Campaign and its instruments (II)

➤ The **Display® online calculation software** enables municipalities an uncomplicated assessment of the performance of individual buildings and benchmarking the results against similar structures in Europe.

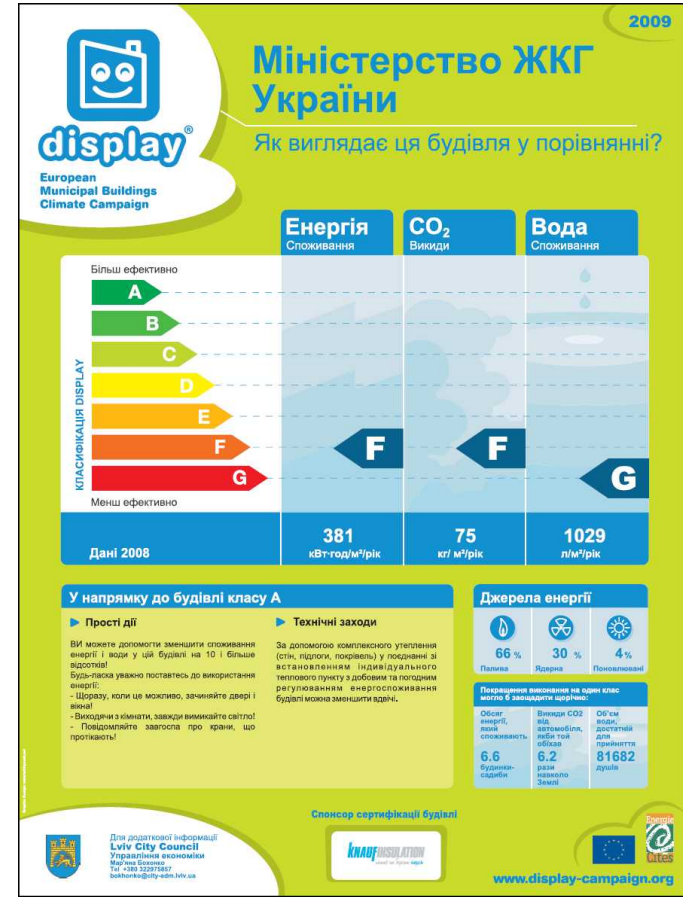
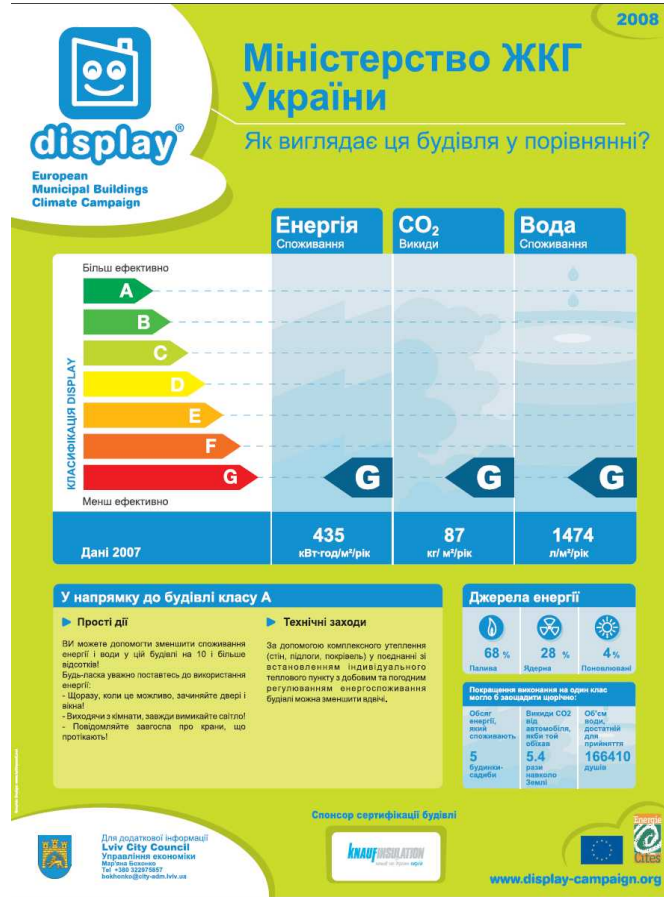
➤ This tool generates ready to print electronic model of the **Display® poster**, which is based on the widely known energy performance labels used for certification of household appliances.





The Display® poster is a well designed and user friendly communication tool, making the energy and environmental performance transparent to everyone. It is also a source of information on the plans concerning energy efficiency investments and new technical solutions to the existing problems. The poster is valid for twelve months and should be renewed each year.

- After some years, a series of posters enables observation of the dynamics of change in the energy and environmental performance of particular entities.
- Therefore, Display® is also a great analytical instrument for municipal energy managers to monitor the energy, water and carbon performance of the public buildings.





As the core element of the Display® Campaign, the poster should be put in a prominent place, clearly visible and easily accessible to everyone.



Above: Display® posters at the entrance of a residential building at the Leninhradskiy Kvartal, 5 in the town of Slavutych





The Display® Campaign and its instruments (III)

- However, hanging Display® posters in municipal buildings would not be enough to substantially influence the public mentality; it should rather be a starting point for large-scale awareness raising campaigns directed at all their visitors and users, as well as at the local authorities and the administrative staff of particular entities.
- In many schools, Display® is being used as an educational instrument for teaching the young generation an appropriate attitude towards energy and water resources.
- A special European club of the Display® users has been established and some countries have additionally set up similar national clubs, in order to enhance exchange of experiences, discussions and planning of common actions.
- The ‘Towards Class A’ Award for the most engaged and innovative Display® Campaign participants, encourages the municipalities to benchmark and improve their communication strategies concerning energy, water and carbon performance of their buildings.



The Display[®] Campaign and the EU legislation on energy performance of buildings (I)

- Actually, **the primarily objective of launching the Display[®] Campaign**, aiming to convince people to stop wasting energy and water, **was to anticipate and accelerate the implementation of the EU Directive 2002/91/EC of 16 December 2002 on energy performance of buildings (EPBD)**, according to which the EU member states received six years for the full transposition of its provisions into their national legislations, in particular, for the development of energy performance classification schemes.
- This Directive has obliged the EU member states to apply certain minimum requirements, concerning the certification of the energy performance of buildings, as well as the regular inspection of boilers and air conditioning systems in buildings.
- The great advantages of this certification scheme are its exactness and reliability of the assessment methods, which build upon objective indicators.
- Its disadvantage lies in the fact that it does not take into account such important factors as the residents' behaviour and the actual utilization of the building.
- Thus, many municipal energy managers do not consider this approach as sufficient for an effective energy management and apply Display[®] as a complementary monitoring and communication instrument.



The Display[®] Campaign and the EU legislation on energy performance of buildings (II)

- The **main beneficiaries of the EPBD Directive**, which has introduced transparency regarding the energy performance in the EU property market, **have been the end users**, whose interests are now protected through the verification of technical and operational standards of buildings.
- Additional benefits of the adaptation of this Directive include better quality of the natural environment, as well as lower exploitation costs of the buildings, especially, in the public sector, which allows municipalities to invest the saved energy costs in further energy efficiency measures.
- After the transposition of the EPBD has been completed in all EU member states, the Display[®] scheme – due to the inclusion of the water performance indicator, modest costs of its application, its simplicity and great communication value – has continued to exist parallel to the mandatory national certification systems, although many municipalities participating in the campaign have intensively lobbied for the inclusion of some components of the Display[®] Campaign into the national energy certificates for public buildings.



The Display[®] Campaign and the EU legislation on energy performance of buildings (III)

- **On 19 May 2010 a recast of the EPBD – the Directive 2010/31/EU – was endorsed by the EU Parliament** and is to be implemented by all EU member states within two years after its entry into force
- **Reason:** some of the provisions of the old EPBD needed clarification and streamlining, especially in the context of the new considerations concerning the relation between the building sector and the EU Climate and Energy targets, in particular, increasing energy efficiency by at least 20% and reduction of the GHG emissions by at least 20% by 2020 (in the EU buildings are responsible for around 40% of the final energy consumption and 36% of the CO2 emissions).
- The new EPBD Directive sets a common framework for a methodology for calculating the energy performance of buildings and lays down minimum requirements regarding the energy performance of new buildings as well as existing buildings being subject to major renovation.
- **Result:** energy performance certificates are to be prepared on the basis of a methodology, which should cover the annual energy performance of a building and take into account local outdoor climatic conditions, the indoor climate requirements and cost-effectiveness
- **New:** the **Article 11** on adopting a voluntary common European Union certification scheme for the energy performance of non-residential buildings by 2011 and the **Article 20**, emphasizing the importance of the communication and awareness raising campaigns **have been included into the scope of the new EPBD.**



The Display[®] Campaign and the EU legislation on energy performance of buildings (IV)

- The **Directive has recognized the leading role of the local and regional authorities in reaching the EU energy efficiency targets** and stipulates that they should be not only involved in the implementation of the EPBD, but also consulted on development of energy efficiency informational, training and awareness-raising programmes.
- **Public buildings should serve as energy efficiency models** and their energy performance certificate should be displayed in a prominent place and should include information on the officially recommended and the actual temperature, which should prevent wasting energy and safeguard comfortable indoor climatic conditions.
- All new public sector buildings should reach the “nearly-zero energy” status by 2018, while the analogical deadline for new commercial and residential buildings is the end of 2020
- **The new EPBD acknowledges the ‘Covenant of Mayors’** – a bottom-up initiative of local authorities, supported by the European Commission and bringing together Europe's pioneer towns and cities, which have formally committed themselves to go beyond the objectives of the EU Climate Action and Energy Package and curb their CO₂ emissions by at least 20% by 2020 through enhanced energy efficiency and cleaner energy production and use – **as one of the most effective EU instruments for stimulating energy efficiency.**



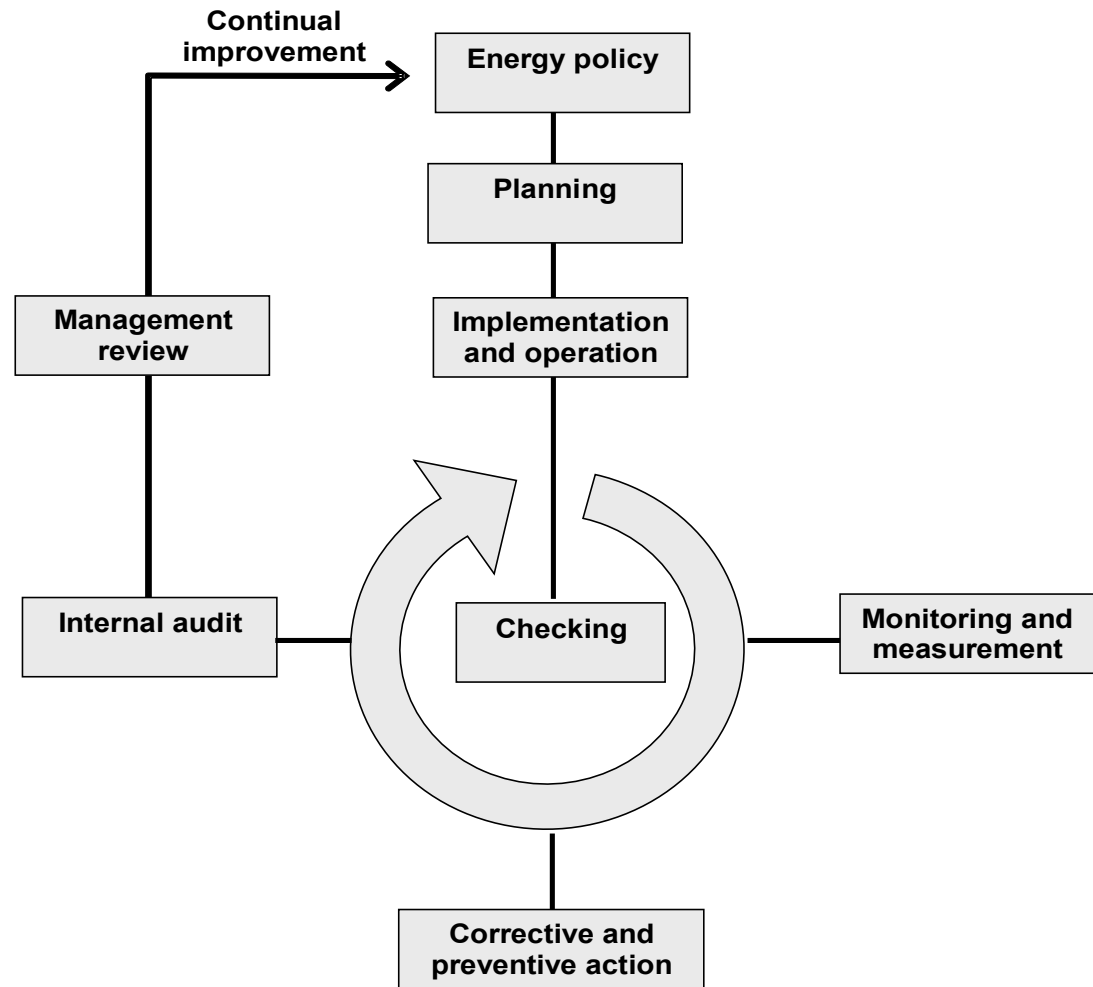
The importance of standardization to effective energy management and the value of the Display[®] Campaign in implementation of the European standard EN 16001:2009 in municipalities

- An **effective local energy management** is becoming increasingly important – not only because of the global political commitments to save energy and reduce greenhouse gas emissions – but especially as a **key factor of success of municipalities** and any other organization.
- **On 1 July 2009, the European Committee for Standardization (CEN) issued the European Standard ‘EN 16001:2009 – Energy Management Systems – Requirements with guidance for use’,** in order to support all types of organizations, operating in diverse geographical, cultural and social conditions, in establishing an appropriate energy management system, necessary to improve their energy efficiency.
- The **EN 16001**, , which **is based on the Deming’s Plan-Do-Check-Act cycle**, builds upon already existing national standards and represents the most advanced best practice in energy management.
- It **follows the structure and methodology of the international environmental management system standard EN ISO 14001**, which facilitates its use and integration with other management system standards, e.g. in quality management or with the ISO 14001 itself.



Energy management system model for the EN 16001:2009

- Monitoring, providing documentation and communicating the progresses achieved through introduction of energy management system belong to the crucial components of a successful energy management, which means that the Display® Campaign can be very useful in implementation of this standard.
- In particular, municipalities and other organizations can apply its instruments to monitor and communicate the energy performance in their buildings internally and externally.
- The experts of the Association 'Energy Efficient Cities of Ukraine' have understood the value of standardization to municipal energy management and have intensively lobbied for adoption of the EN 16001 in Ukraine that has not developed its own energy management standard.





Municipal energy management in Ukraine – main challenges and their origins

- Although in many EU countries energy management has become an integral component of the municipal sustainable development policy, **energy management units are still rarely present in the structures of the Ukrainian city councils.**
- **Reasons:** lack of political will and financial resources in the municipal budgets, artificially low energy prices, high level of centralization of the executive power and weak local governments, insufficient professional and linguistic skills of the municipal staff, which hinder an effective exchange of experiences with other local authorities from the EU member states, the impediments stemming from the communist past of the country and connected with the social mentality.
- But regardless of the recent political changes in the country, **energy prices in Ukraine have been slowly but inexorably rising** and – although they still lie substantially under the market level – **an increasing number of municipal decision makers start to understand the importance of energy planning at the local level.**
- The most effective way to convince the local authorities to the necessity of establishment of sustainable energy management in their municipality is demonstration of substantial and measurable successes in energy saving that lead to significant positive budgetary results.
- Communicating such successes to the citizens and promoting energy efficiency as a weapon in the global fight against climate change among the local stakeholders should also become integral components of the municipal energy management system.



Municipal energy management in Ukraine with special regard to buildings

- Similarly to other European countries, also **in Ukraine** – belonging to the least energy efficient countries in the world and having a very high GHG emissions levels – **the greatest potential to save energy lies in the building sector**, which accounts for more than 33% of the total energy consumption of the country
- **Ukrainian cities are responsible for almost 75 % of the total energy consumption and about 80 % of the CO2 emissions of the country**
- **The energy expenses invariably occupy the second position in the budgets of Ukrainian municipalities** (just after the labour costs) and **over 90 % of them are associated with the maintenance of the public buildings**
- The level of consumption of the thermal energy in Ukrainian municipal buildings surpasses the corresponding indicators in the Western European countries with similar climatic conditions by 1,5 -2 times
- Thus, the **building stock in Ukraine possesses a considerable potential for increasing energy efficiency**, which would tangibly reduce the burden both on the local budgets and the natural environment.



Ukrainian legislation concerning efficient use of energy resources

- Unfortunately, the **Ukrainian legislation regarding energy efficiency does not correspond to the modern challenges in this area** and the existing public administration mechanisms leave local authorities little room for activities advancing the implementation of the national energy policy at the municipal level, which would positively influence the whole economy of the country.
- The Ukrainian Parliament is dominated by a strong financial and industrial lobby, which ignores national interests concerning energy efficiency and tends to use legislative power for its own profit. As a consequence, Ukrainian energy legislation has become strongly preferential towards the supply side, granting subsidies to utilities providing energy services and tax relieves to producers of energy efficient technologies and equipment.
- Although the Ukrainian legislation contains about 100 legal acts, several norms and standards as well as a significant number of regulatory and methodological documents concerning energy efficiency, most of them are of a rather declarative character and have failed to bring the expected results.
- In particular, the **basic legislative act** in this area – the **Law of Ukraine ‘On Energy Saving’ of 1 July 1994, last updated in 2007 – often refers to other subordinate normative acts that have yet not been adopted**. As a result, the most important provisions with regard to tax and credit incentives, concerning energy efficiency provided in this Law, have not entered into force.



The Association 'EECU' – a bottom-up approach to energy efficiency challenges in Ukraine

- Although the overall picture of the energy efficiency in the country does not appear very optimistic, fortunately, Ukraine has its visionary leaders, ready to challenge the indifferent attitude of the central authorities to the municipal environmental and energy efficiency problems and to actively look for tangible solutions.
- **In 2007, four pioneer Ukrainian mayors of the cities Kamenets-Podilskiy, Berdyansk, Lviv and Slavutych – supported by the Ministry of Housing and Communal Services of Ukraine and the European Association of Municipalities 'Energy-Cities' – decided to combine their efforts in this area and established the Association 'Energy Efficient Cities of Ukraine', non-profit organization that operates in accordance with the Ukrainian Law on municipalities**
- **Mission: enhancing sustainable energy development of local communities, technical assistance in energy management, capacity building in formulating sustainable municipal energy policy and its implementation, facilitating co-operation of its members with national, regional and local governments, NGOs and businesses in Ukraine and abroad, supporting its member cities and towns in improving the quality of life of their citizens and increasing the local energy security.**
- **The association presently unites already twenty six cities and towns, representing different regions of Ukraine, and receives an increasing number of applications from new candidates from all over the country.**

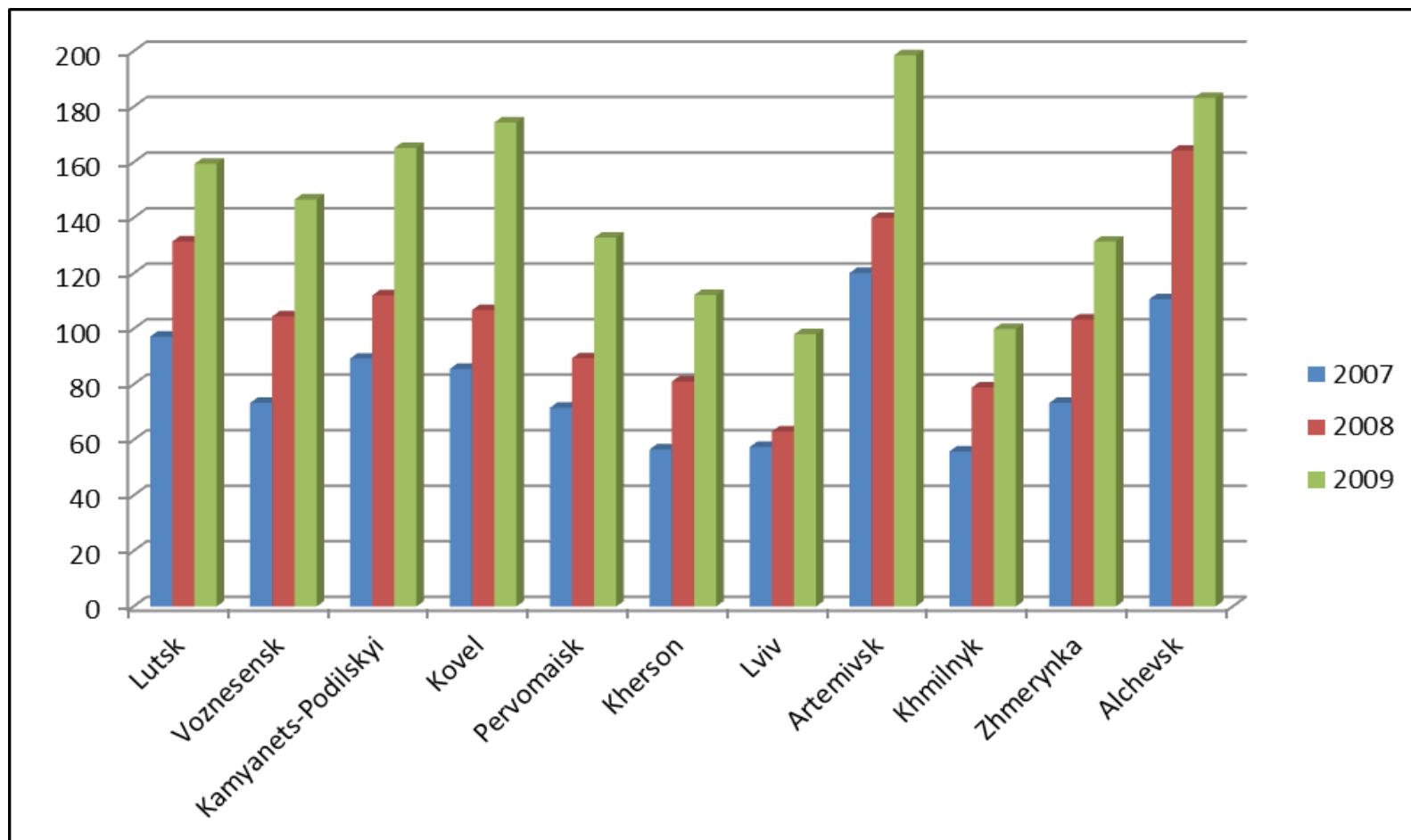


Member cities and towns of the Association 'ECU'





Energy expenditures per 1 inhabitant (in UAH) of the member cities of the 'ECU' in the years 2007-2009





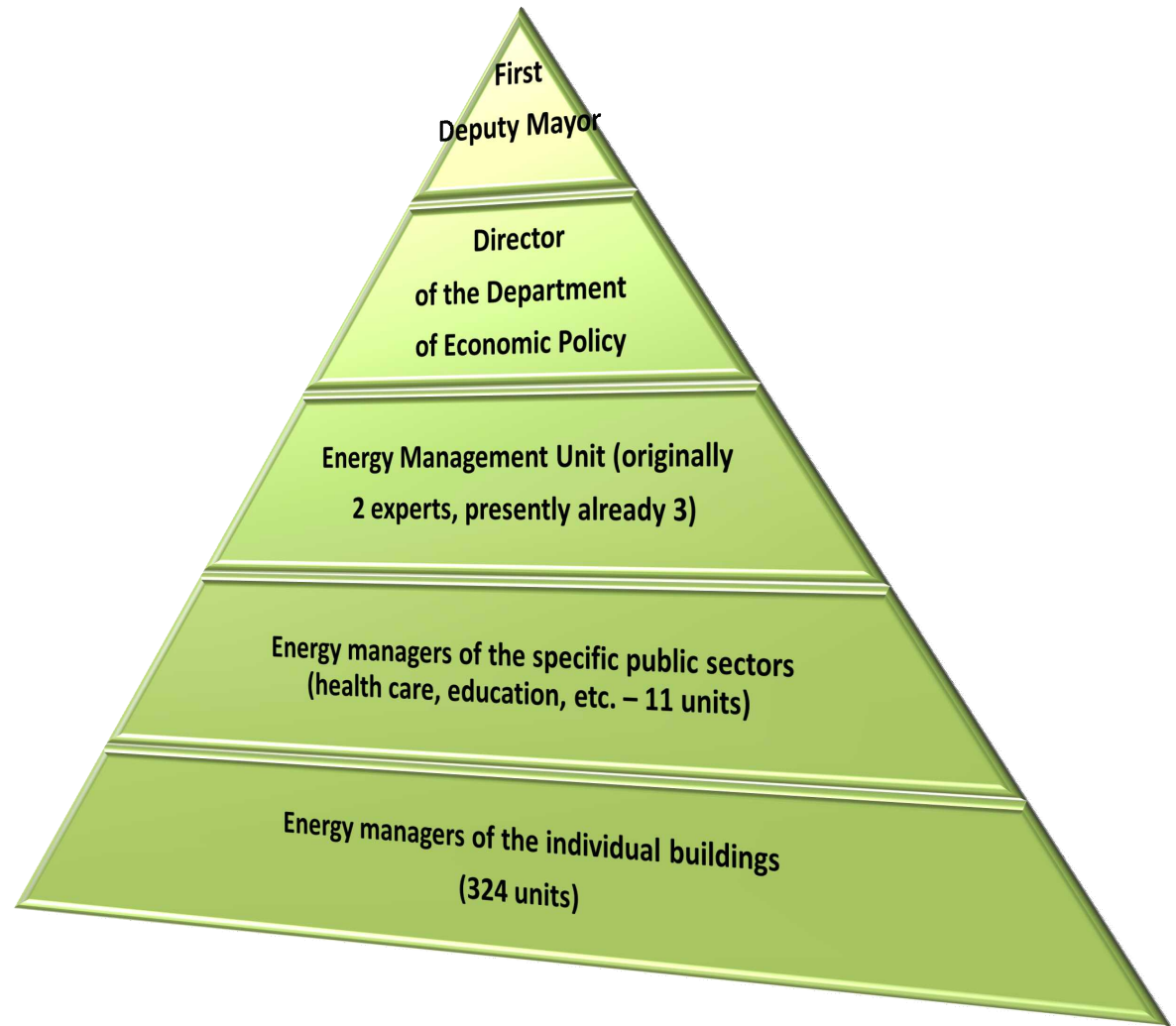
The beginnings of the municipal energy management in Ukraine

- The **history of municipal energy planning in Ukraine started in 2000 in Lviv**, when the monitoring of energy consumption and energy expenditures in schools was launched.
- Having finalized the implementation of the metering programme, which was introduced in late 90s and covered all municipal buildings in Lviv, the local authorities – thanks to the extensive assistance of the ‘EECU’ experts – introduced electronic monitoring system of the energy use in their public buildings, which was a revolutionary step that eventually led to establishment of the first advanced municipal energy management system in Ukraine.
- **In 2006**, basing on the experience of Ivano-Frankivsk – Ukrainian pioneer in municipal energy management, **Lviv City Council approved the concept of introduction of energy management in its territory.**
- Later, the **leaders of the successive Ukrainian pioneer cities** that decided to follow the example of Lviv **have established special energy management units within the structures of their city councils: Artemivsk, Dolyna, Ivano-Frankivsk, Kamenets-Podilskyi, Kovel, Lutsk, Lviv, Myrhorod, Slavutych and Voznesensk.**
- Those units control and regulate the local energy market and motivate local stakeholders for more efficient energy generation and consumption as well as sustainable management of natural resources. They monitor energy consumption in the public buildings and give opinions on the planned municipal investments with respect to energy.



Introduction of municipal energy management in Ukraine - the example of the City of Lviv (I)

A multi-level hierarchical energy management system was established and integrated into the administrative structure of the city in March 2007, after several strategic documents were adopted by the Lviv City Council, the City Administration and the Mayor



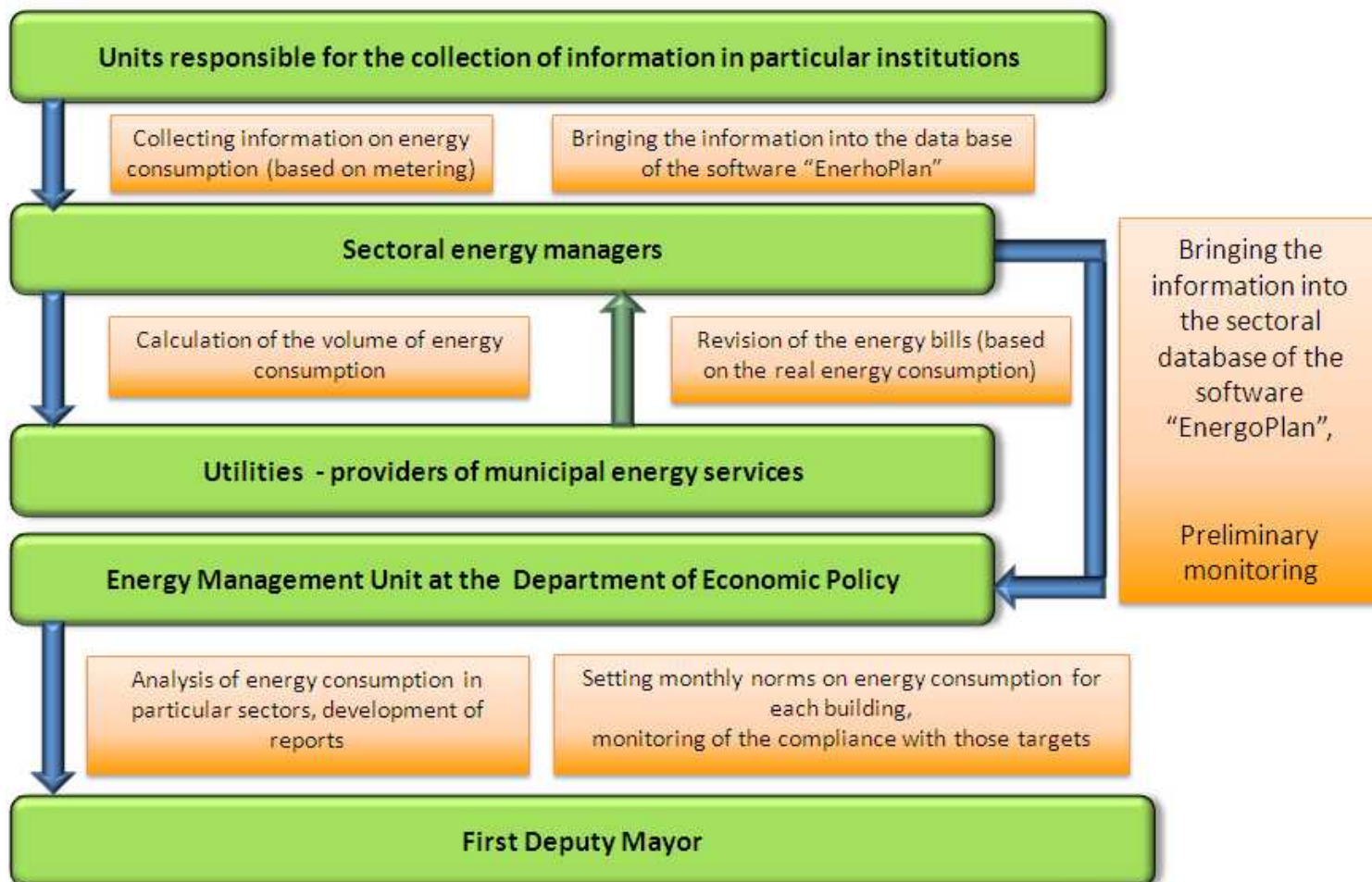


Introduction of municipal energy management in Ukraine - the example of the City of Lviv (II)

- In **January and February 2007**, the energy performance of a few pilot schools was fully controlled. On the basis of this data, **objectives for the public buildings sector were set and the city administration allocated tasks to competent units, as well as developed and started to implement the municipal energy plan for the City of Lviv.**
- At the **end of 2007**, the **'EnergoPlan' software to monitor energy consumption in buildings** – developed by the local software producing company 'IT Management', in cooperation with the prospective experts of the Association 'EECU' – **was introduced in energy management units** and all concerned energy managers had been professionally prepared for utilization of this programme.
- Building upon the pertinent energy bills for particular months, **a special data base on monthly energy consumption from 2006 to 2008 was set up for 503 public buildings.**
- For the first time, such high-quality information, which is indispensable for effective energy management, has become available for the decision makers of the City of Lviv.
- Proceeding from the values measured in the previous years and taking into account the relevant changes in the technical parameters of particular buildings, **benchmarks for monthly energy use for each of them were determined. The compliance with the energy consumption targets in individual buildings was analyzed and discussed at the monthly meetings, attended by the entire energy management team of the City of Lviv.**



Diagram of the functioning of the energy management system in Lviv





The launch of the Display[®] Campaign in Lviv

- Although the 'EnergoPlan' electronic database on energy consumption in public buildings has substantially facilitated the analysis of energy performance of municipal buildings, this data was accessible only to a limited number of experts and not to the general public, so no behavioural change with regard to the energy consumption in the public buildings occurred.
- In order to increase the energy efficiency awareness and competence of the employees and visitors of the public buildings, the decision makers at the City Council decided to launch the Display[®] Campaign in Lviv.
- Thanks to the 'EnergoPlan', Lviv Energy Management Unit was able to effectively apply the Display[®] internet software.
- Having officially joined the Display[®] Campaign on 6 March 2008, Lviv City Council obtained a powerful instrument for communicating its achievements to the citizens, whose support and engagement in activities promoting efficient use of energy resources is the most credible confirmation of the correctness of the chosen path towards sustainable development.



The beginnings of the Display® Campaign in Ukraine (I)

- The **origins of the Display® Campaign in the country go back to 2005**, when the City of **Ivano-Frankivsk** – at that time the only Ukrainian member of the European organization ‘Energy-Cities’ – **signed the Display® Charter**. Thanks to the engagement of the Department of Energy Conservation and Communal Services of the City Administration, **already in the first year, the campaign covered 102 public buildings in Ivano-Frankivsk**.
- **During the initial three years of the Display® Campaign in Ivano-Frankivsk, 306 Display® posters were prepared and in all 36 schools participating in the campaign, the poster was applied as a key element of the classes on natural environment**. Due to the unprecedented momentum of this action, the example of **Ivano-Frankivsk was put into the 'best practices' database of the official website of the Display® Campaign**.
- But the difficult financial situation of the city in the years 2006 – 2009 permitted to print and hang out only one third of the prepared posters annually.
- The Display® posters had neither become basis for any broader awareness raising campaigns concerning efficient use of energy resources, nor were they considered as the integral part of the municipal energy management system (their preparation was not supported by any specific software).
- The potential of the Display® instruments could not be fully exploited and it was becoming increasingly clear that a national coordinating structure was needed to advance the implementation of the campaign in Ukraine.



The beginnings of the Display[®] Campaign in Ukraine (II)

- After the Association 'EECU' was founded and together with its member cities became a collective member of the 'Energy-Cities', the Display[®] network in Ukraine began to expand rapidly.
- **The main momentum for the expansion of the Display[®] Campaign in Ukraine was signing the contract on mutual cooperation between the 'Energy-Cities' and the 'EECU' on 8 February 2008** (at the end of that year, the Foundation 'Eastern Europe' awarded the 'EECU' a grant for dissemination of the campaign in its four member cities: Dolyna, Kamyanets-Podilskyi, Lutsk and Lviv).
- Building upon the experience of Lviv, the three other partner-cities of the project started to apply the 'EnergoPlan' for collecting and analyzing energy consumption in their public buildings, which considerably simplified the preparation of the Display[®] posters.
- After finishing this project, the 'EECU' has continued to promote the campaign in Ukraine. The effects were to be seen soon: **already in 2009, the City Councils of Lviv and Ivano-Frankivsk were officially recognized as one of the twenty most active local authorities involved in the Display[®] Campaign.**



The beginnings of the Display® Campaign in Ukraine (III)

- Gradually, more and more Ukrainian cities and institutions started to apply Display® to communicate the energy and environmental performance of their buildings to the general public (in **2008, already 10 cities: Chervonohrad, Dolyna, Ivano-Frankivsk, Kamyanets- Podilskyi, Khmilnyk, Kovel, Lutsk, Lviv, Slavuta, Slavutych**). The Kyiv Polytechnic Institute, the Ministry of Housing and Communal Services, the Ministry of Regional Development and Construction, the Main Health Department and the State Inspection of Energy Conservation joined the club in 2008.
- But not all Ukrainian cities had consistently applied the Display® calculation software in the years 2006 – 2009. Moreover, **several municipalities had not always had enough financial resources to print and hang out all the posters prepared each year.**
- **Kamyanets-Podilskyi and Lviv turned out to be the most active Ukrainian participants of the campaign**, regularly using the Display® tools to analyze and discuss the data concerning energy and environmental performance of their public buildings.
- **Kamyanets-Podilskyi – followed by the little town of Slavutych – has become a pioneer in applying Display® in the municipal housing sector in Ukraine.**
- **In 2010, also Lviv launched the campaign in five pilot municipal houses** – just in time to effectively communicate energy and environmental performance of the concerned buildings to their residents and the general public during the first Ukrainian large scale awareness raising campaign ‘Sustainable Energy Days in Lviv’ on 4-6 November 2010.



The value of the Display[®] Campaign to municipal energy management in Ukraine (I)

- According to the energy managers of the Ukrainian cities participating in the campaign, the **Display[®] instruments serve them primarily to monitor the energy and environmental performance of the public buildings .**
- Applying the Display[®] software allows the management of a particular building taking immediate operative decisions, if any irregularities in energy or water consumption occur.
- The Display[®] posters enable the administrative staff, residents or visitors of individual buildings observation of the dynamics of change in the energy and environmental performance of the concerned edifice and depict to what extent its authorities have ameliorated its integrated energy, water and CO2 ratios within a few years.
- Since this information is available to the general public, the **managers of particular entities and their staff have the incentive to reduce the use of energy and water resources in their buildings.**
- As a result, the energy, water and CO2 indicators improve each year, the municipalities save significant amounts of budgetary resources and an increasing number of edifices advance on their way towards the class 'A'.



The value of the Display[®] Campaign to municipal energy management in Ukraine (II)

- However, hanging the Display[®] posters in municipal buildings would not suffice to substantially raise the public awareness of the importance of efficient use of energy and water resources to sustainable economic development of municipalities.
- Therefore, the decision makers of several Ukrainian cities have consistently popularized this idea through the **local media** and have put the **information on launching the Display[®] Campaign in their territories on the official websites of their City Councils.**
- **In Ivano-Frankivsk, Lviv and Slavutych the Display[®] posters have also been used at schools as a key component of the lessons on natural environment.**
- **The employees of municipal entities have regularly been trained on the efficient use of energy and water resources.**
- Many local authorities have also organized **annual meetings for representatives of all public structures**, in order to give them the opportunity to compare the performance of their buildings and demonstrate best practices, as well as different behavioural and technical measures, aiming to reduce energy or water consumption. During those meetings **the results of the monitoring of the use of energy and water resources in all municipal buildings are presented and discussed with the managers of particular entities and the top management of the city.**



The value of the Display[®] Campaign to municipal energy management in Ukraine (III)

- Apart from the annual meetings, **several local authorities have decided to additionally analyze the monthly, weekly or even daily energy and water consumption in their municipalities, depending on the size of the city and the number of the public buildings.**
- **The results of those analyses allow comparing the energy and water performance of entities of the same categories and selecting the most energy-intensive structures, for which special energy efficiency measures are to be implemented.**
- In this regard, according to the energy managers of Lutsk, Kamyanets-Podilskyi and Lviv, **the Display[®] Campaign has been particularly valuable as the unique in Ukraine effectively functioning energy certification system of buildings.**
- Nevertheless, since no other energy performance certification systems of buildings exist in the country and the **Display[®] classification scheme does not take into account such important indicators as the indoor temperature, luminance and ventilation, there is a danger that the comfort factors will be partially ignored and it could happen that inadequately heated and badly lit buildings will be presented as 'good practices'.**
- Therefore, **it might be reasonable to integrate the above mentioned comfort factors into the Ukrainian version of the certificate, in order to prevent possible abuses and make the best possible use of the potential of the campaign.**



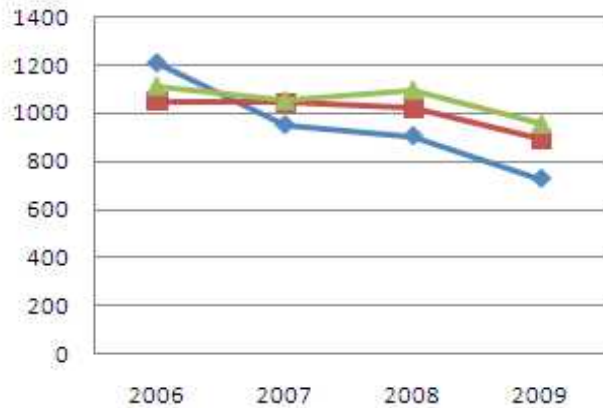
The value of the Display[®] Campaign to municipal energy management in Ukraine with special regard to Kamyanets-Podilskyi and Lviv (I)

- Building upon the results of a specially developed survey on the value of the Display[®] Campaign to municipal energy management in Ukraine as well as the on data of the 'Energy-Cities', the 'EECU' experts have prepared an analysis of the dynamics of change in the average energy, CO₂ and water ratios in the three most representative categories of public buildings: kindergartens, schools and hospitals in the years 2006-2009.
- This analysis has covered all Ukrainian cities participating in the campaign with special regard to the two most active and experienced municipalities: Kamyanets-Podilskyi and Lviv.

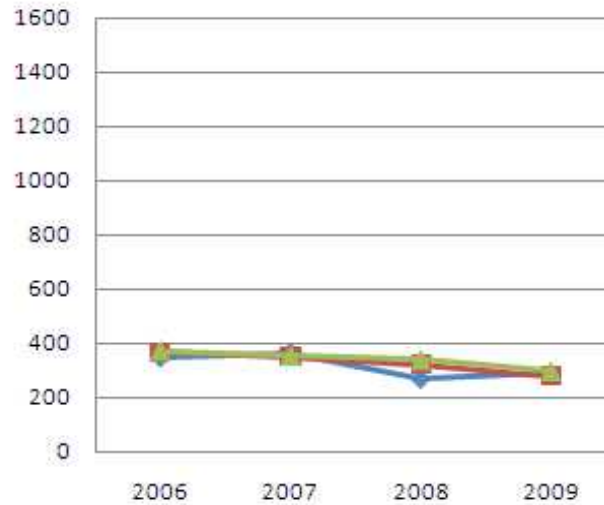


Dynamics of change in the average integrated water ratios in kindergartens, schools and hospitals in all Ukrainian cities-participants of the Display® Campaign in the years 2006-2009 with special regard to Kamyanets-Podilskyi and Lviv

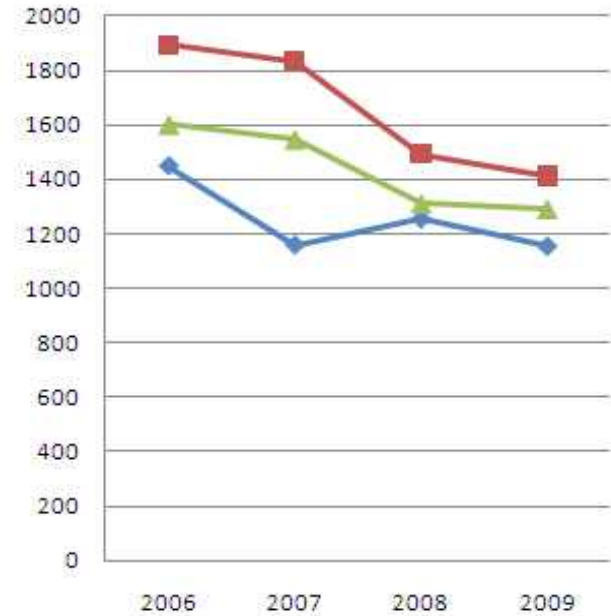
Water ratios in kindergartens
(l/m²/year)



Water ratios in schools
(l/m²/year)



Water ratios in hospitals
(l/m²/year)



◆ Kamyanets-Podilskyi

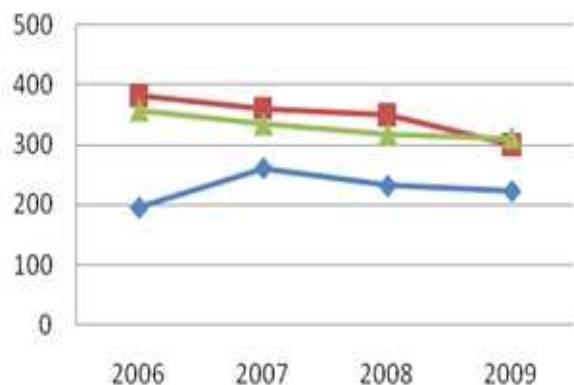
■ Lviv

▲ All Ukrainian cities-participants of the Display® Campaign

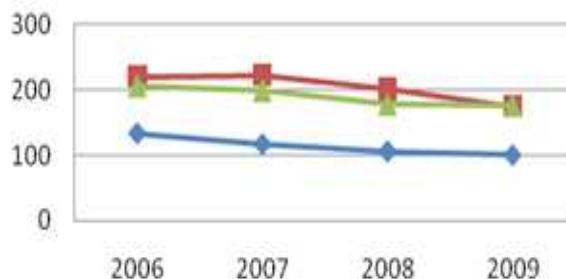


Dynamics of change in the average integrated energy ratios in kindergartens, schools and hospitals in all Ukrainian cities participating in the Display[®] Campaign in the years 2006-2009 with special regard to Kamyanets-Podilskyi and Lviv

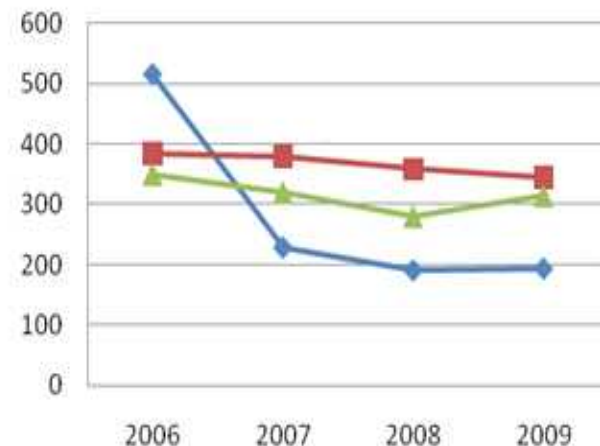
Energy ratios in kindergartens (kWh/m²/year)



Energy ratios in schools (kWh/m²/year)



Energy ratios in hospitals (kWh/m²/year)



◆ Kamyanets-Podilskyi

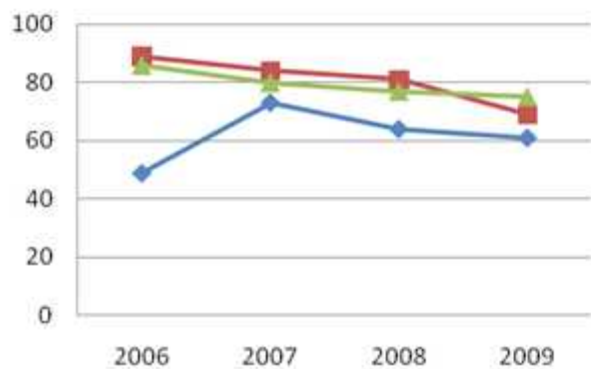
■ Lviv

▲ All Ukrainian cities-participants of the Display[®] Campaign

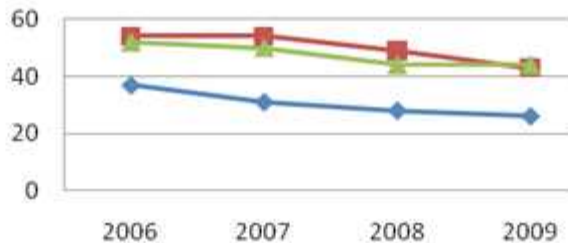


Dynamics of change in average integrated CO₂ ratios in kindergartens, schools and hospitals in all Ukrainian cities participating in the Display[®] Campaign in the years 2006-2009 with special regard to Kamyanets-Podilskyi and Lviv

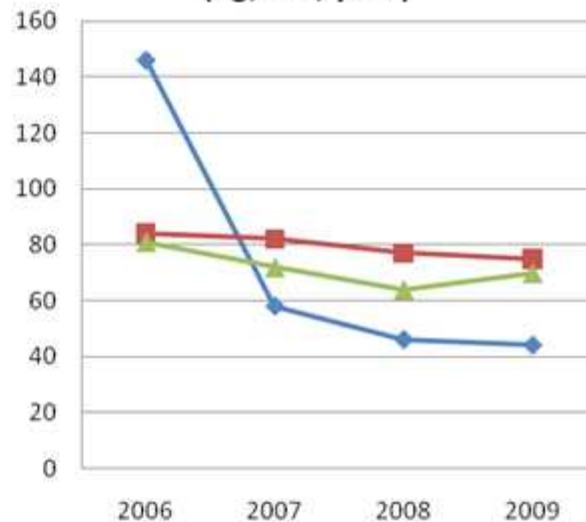
CO₂ ratios in kindergartens
(kg/m²/year)



CO₂ ratios in schools
(kg/m²/year)



CO₂ ratios in hospitals
(kg/m²/year)



◆ Kamyanets-Podilskyi

■ Lviv

▲ All Ukrainian cities-participants of the Display[®] Campaign

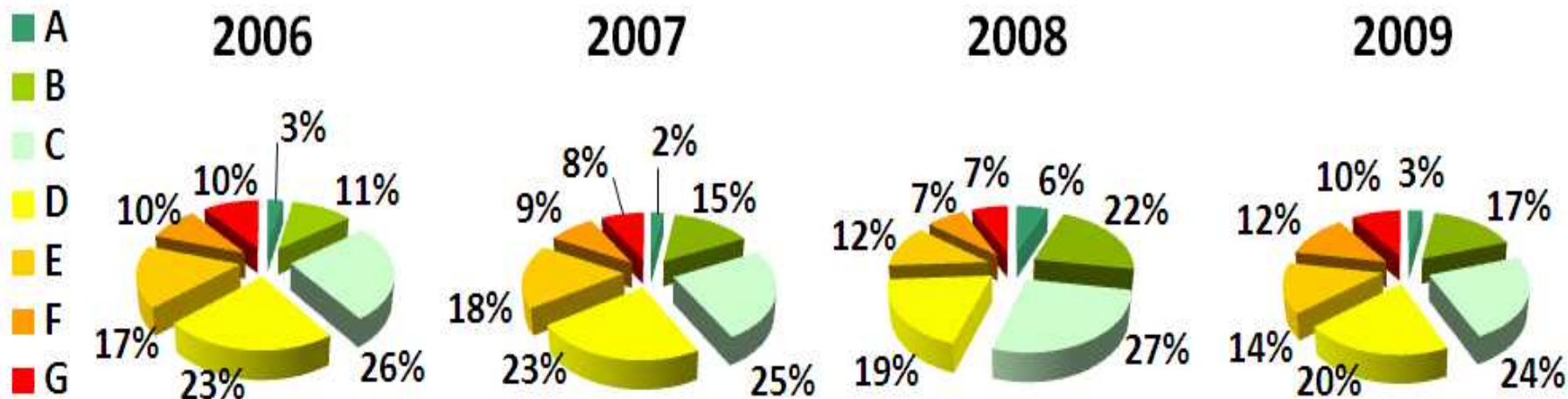


The value of the Display[®] Campaign to municipal energy management in Ukraine with special regard to Kamyanets-Podilskyi and Lviv (II)

- The positive dynamics of change in the average water, CO₂ and energy ratios in kindergartens, schools and hospitals in all Ukrainian cities participating in the Display[®] Campaign in the years 2006-2009 turned out to be true also for other categories of buildings.
- As a consequence, the share of particular energy efficiency classes in the whole building stock of the Ukrainian municipalities participating in the campaign had also changed significantly in the years 2006-2009. Unfortunately, the winter 2009/2010 seem to have negatively influenced also this trend.



Share of various energy efficiency classes in the whole public building stock of the Ukrainian municipalities participating in the Display[®] Campaign in the years 2006-2009



604 registered buildings

615 registered buildings

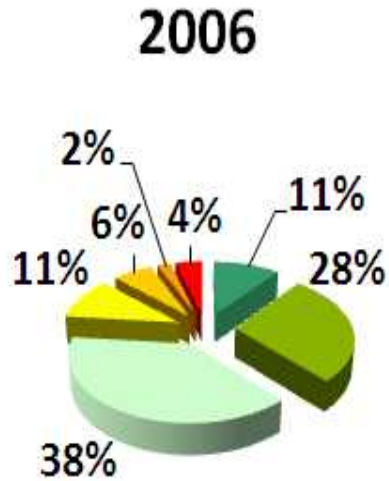
759 registered buildings

759 registered buildings

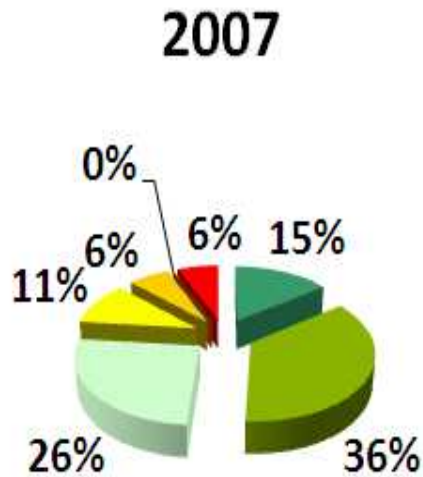


Share of various energy efficiency classes in the whole public building stock of Kamyanets-Podilskyi in the years 2006-2009

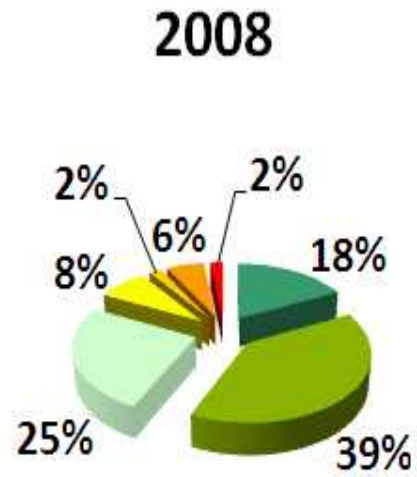
- A
- B
- C
- D
- E
- F
- G



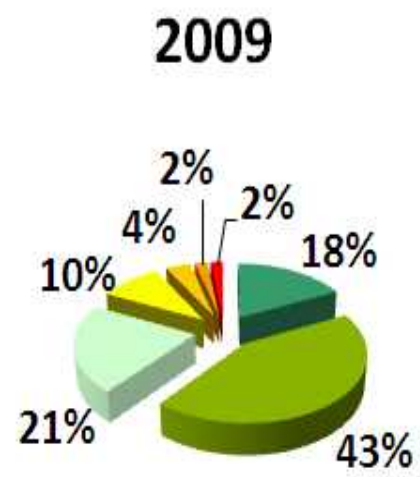
47 registered buildings



47 registered buildings



51 registered buildings



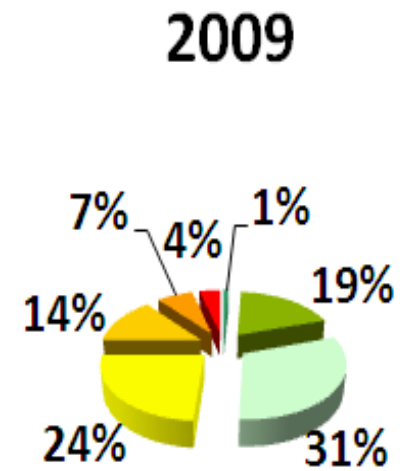
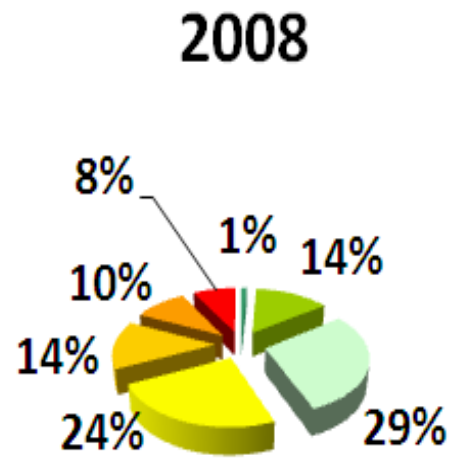
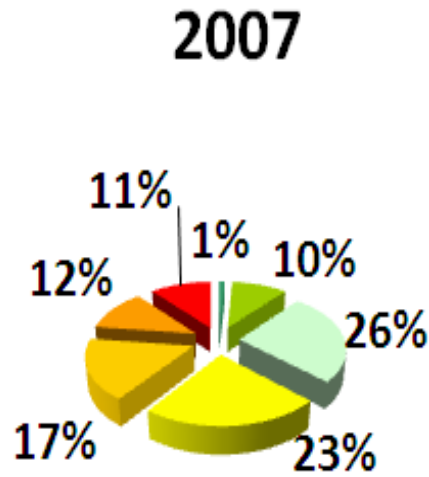
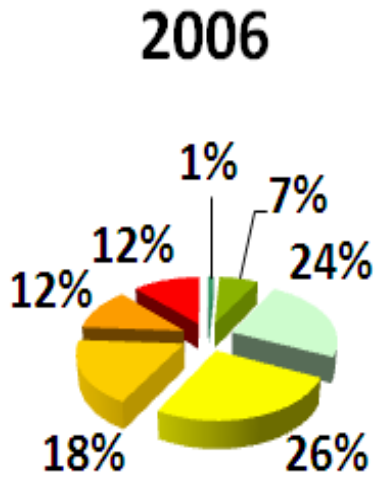
51 registered buildings





Distribution of various energy efficiency classes in the whole public building stock of the City of Lviv in the years 2006-2009

- A
- B
- C
- D
- E
- F
- G



350 registered buildings

356 registered buildings

359 registered buildings

358 registered buildings

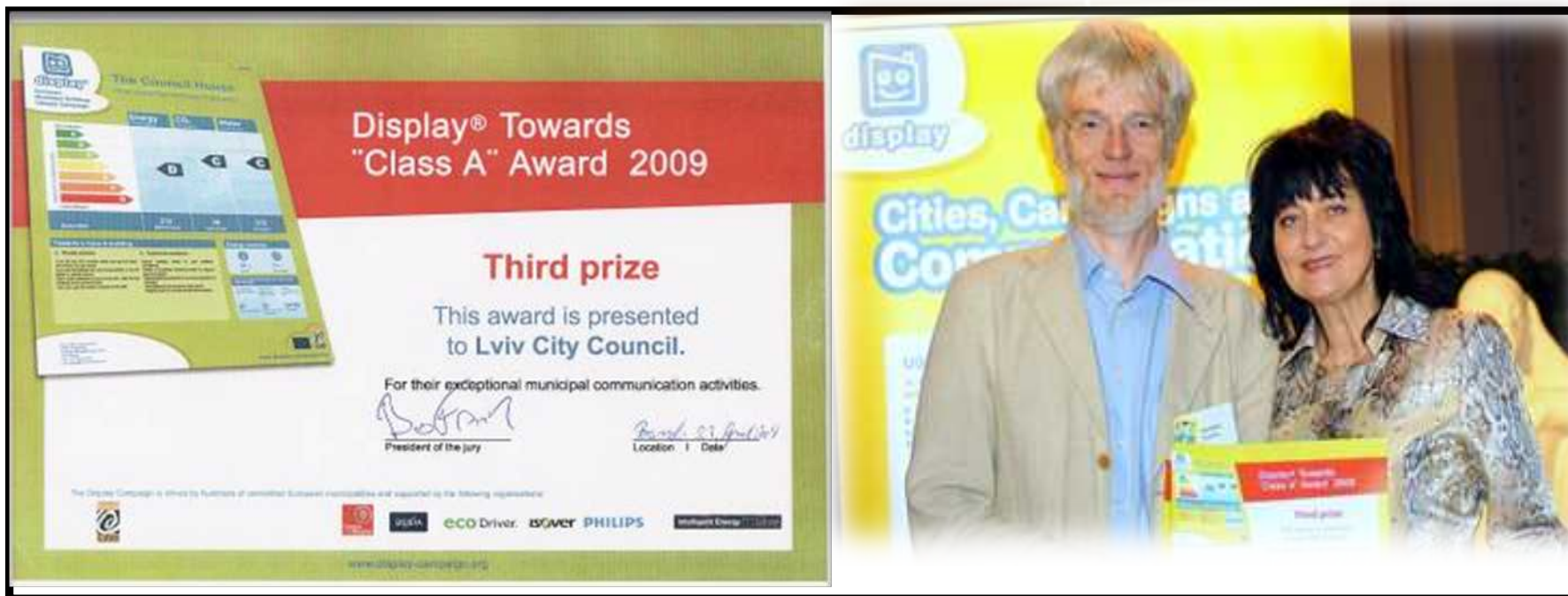


The value of the Display[®] Campaign to municipal energy management in Ukraine with special regard to Kamyanets-Podilskyi and Lviv (III)

- Both **Kamyanets-Podilskyi and Lviv** had clearly improved the energy performance of their public buildings in the years **2006-2009** and their City Councils were able to save significant amounts of budgetary resources and partially reinvest them in further energy efficiency measures.
- The energy savings in the **City of Lviv** accounted for 2.406.000 UAH (about **240.000 EURO**) in **2007**, 2.583.000 UAH (about **260.000 EURO**) in **2008** and 4.000.000 UAH (about **400.000 EURO**) in **2009**.
- However, due to the existing budgetary procedures in Ukraine, the **saved energy costs could neither be depicted separately in the municipal budget nor directly reinvested in further energy efficiency measures**. Open declaration of those savings could even lead to reductions in the governmental energy subsidies in the following year and, consequently, threaten the whole municipal budget.



Third prize diploma for the Lviv City Council in the Display® Towards “Class A” Award 2009



In spite of difficulties, Lviv City Council has achieved spectacular successes in promoting sustainable use of water and energy resources, which have been recognized and appreciated even outside the country: **in 2009, the City of Lviv was awarded third prize in the European contest of the Display® Campaign Towards “Class A” for ‘exceptional communication activities’, regarding sustainable use of energy and water resources in municipal buildings.**



The value of the Display[®] Campaign to municipal energy management in Ukraine

- Inspired by the tangible effects of the Display[®] Campaign in the public buildings, in **2010 the decision makers of Lviv City Council have decided to launch the campaign in the municipal housing sector**. If the campaign turns out to be successful in the five pilot apartment blocks, it could be extended to all 19713 multi-residential houses in Lviv, which would definitely be a milestone in fulfilling the CO2 and energy efficiency commitments of the city, connected with its adhesion to the 'Covenant of Mayors'.
- Lviv and ten other Ukrainian cities: Artemivsk, Dolyna, Kamyanets-Podilskyi, Kherson, Kovel, Lutsk, Pervomaisk, Pryluky, Voznesensk and Zhmerinka, belonged to the 369 pioneer local authorities from twenty seven European countries that joined this climate change mitigation initiative in February 2009.
- Since that time, **already over 2000 local authorities have signed the 'Covenant of Mayors'** and, thanks to the engagement of the 'EECU' – the unique in Ukraine official Supporting Structure of the Covenant, also **17 Ukrainian municipalities** have become active members of this elite club. Many of them are also participants of the Display[®] Campaign and have long been applying its instruments for effective energy management in their municipal buildings.

Ukrainian Signatories of Covenant of Mayors





The value of the Display[®] Campaign to municipal energy management in Ukraine

- Taking into account that buildings are responsible for about 30% of the CO₂ emissions in Ukraine, the **experience of the Display[®] Campaign participants will definitely be of great value for the realization of the commitments of the Ukrainian signatories of the 'Covenant of Mayors' and could significantly facilitate the development and implementation of their respective Sustainable Energy Action Plans.**
- **Particularly spectacular effects can bring widening the campaign to the municipal multi-residential housing and to the private sector in general, provided that the comfort factors – in particular, both the recommended and the actual temperature inside the building – will be integrated into the Ukrainian version of the Display[®] poster.**
- **This would help to fully utilize the potential of the campaign as a supporting instrument of the 'Covenant of Mayors' – a bottom-up approach to enhancing the integration of Ukraine with the European Union.**



Thank you for your attention!

The presentation is based on the article *The value of the Display® Campaign as a voluntary energy and environmental performance certification system of buildings to the sustainable municipal energy management in Ukraine*, written by A. Schirru-Nowicka, A. Kopets, O. Harasevych (2011), published in: *Innovation – The European Journal of Social Science Research* (Vol. 24, No. 1, July 2011, Routledge)

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