



## SUMMARY OUTCOMES

### EU4ENERGY HIGH-LEVEL CONFERENCE

#### UNLOCKING ENERGY EFFICIENCY POTENTIAL IN ARMENIA

8 November 2017

The key challenges that Armenia is facing in unlocking the larger market potential for energy efficiency investments are:

1. The **remaining regulatory and enforcement gaps** in energy efficiency, building and housing management legislation;
2. Lack of **tailor-made financing instruments** for serving the needs of mixed-income multi-apartment buildings and poorly maintained public buildings;
3. Lack of **rural households' access to modern energy services** and energy efficiency solutions;
4. **Lack of incentives and targeted grant assistance** necessary to ensure not only economic viability of investments in energy efficiency, but also safety, accessibility and seismic resilience of the buildings.
5. **Insufficient technical and institutional capacities** for designing and implementing energy efficiency projects, policies, investments, adequate procurement processes;
6. **Low level of awareness among all players** in the field of energy efficiency - from government stakeholders, designers, contractors, developers to end-users.

In view of the challenges discussed above, the following points emerged as priority areas where further action would help to unlock the energy efficiency market potential, which is significant for Armenia:

1. **Enforcement of the adopted legislation** remains a key task for energy efficiency in buildings. This includes building energy codes, standards, certification, building energy performance evaluation, monitoring and verification, energy management, design of near-zero energy buildings, etc.
2. **The residential sector and multi-apartment buildings in particular** have a significant potential to benefit from energy efficiency reforms and investments. Unlocking the potential in this sector will be possible with strong commitment from and ownership by the government, as well as joint efforts and enhanced support by the donor community.

3. In the **public buildings sector, investments should continue** to contribute to development of the energy efficiency market, and help the public sector to alleviate the energy cost burden on public budgets. The R2E2 Fund could be considered as a useful platform for channelling investments in this sector and has significant potential to be scaled up to achieve Armenia's EE and RES targets.
4. **Enhanced coordination** between the government, donors and other stakeholders could be achieved through a platform led by the R2E2 Fund, which could help to prioritize investments in the buildings sector.
5. **Innovative financing models should be developed to tackle the main bottlenecks.** They should consider an integrated approach, combining investments in energy efficiency and renewable sources, including in rural areas.
6. **Awareness raising is crucial to** achieve behavioural changes and so contribute to unlocking the market potential.

## SPEAKERS' INTERVENTIONS

### SUMMARY

The High-Level Conference on Unlocking Energy Efficiency Potential in Armenia brought together around 100 participants from the Armenian government, International Financial Institutions (IFIs), municipalities and experts, who all welcomed the event as an opportunity to build consensus on priorities for further energy efficiency reforms in Armenia. The aim of the event was to identify the main barriers in the sector and priority areas for reforms and investments, with particular focus on energy efficiency in buildings. In addition, the event launched discussions on rolling out the high-level energy efficiency initiative between EU and leading IFIs (EIB, EBRD, WB, IFC and IMF). The initiative seeks to enhance EU-IFI cooperation to scale up energy efficiency reforms and investments in partner countries, and so move away from individual energy efficiency projects to a comprehensive approach that supports concrete policy actions and mobilizes investments in energy efficiency. Initially, four pilot countries were selected: Tunisia, Serbia, Ukraine and Georgia. Further potential to extend the initiative to all Eastern Partnership countries is being explored, with Armenia being the first country to hold a dedicated event on energy efficiency in buildings.

*The welcome addresses* noted Armenia's efforts in energy efficiency and outlined the main challenges. **Mr Hayk Harutyunyan, Deputy Minister of Energy, Infrastructure and Natural Resources** underlined that the demand for energy efficiency measures is growing thanks to the substantial efforts so far and commitment by the Armenian government in particular. He emphasized the relevance for energy efficiency as a tool to improve resilience of rural communities and ultimately fight energy poverty, as well as improve energy independence of the country. The government is therefore prioritizing rural areas with individual households where renewables (solar panels) can be used and impact leveraged with energy efficiency measures. Finally, Mr Harutyunyan raised the point that changes in attitude and behaviour is the most important element in achieving scale of any measures in energy efficiency. This was repeatedly highlighted in all following interventions as a major challenge in existing projects and as an opportunity for unlocking the market potential for energy efficiency.

**Mr Lawrence Meredith, Director for Neighbourhood East at European Commission's DG NEAR** welcomed the audience by acknowledging the government's commitment to energy efficiency and the progress made so far. He discussed the key elements for unlocking energy efficiency potential in Armenia, underlining that energy efficiency is the cheapest energy as it's the one not spent. New technologies can generate cleaner energy and create jobs, while mobilizing stakeholders from the government, IFIs, municipalities, civil society and citizens will be the key task for scaling up reforms and investments. Mr Meredith noted that the EU has been and will continue supporting energy efficiency measures in Armenia, including to the 17 signatory municipalities of Covenant of Mayors and more than 6000 households which have benefited from EU projects. He closed by stressing that the event is not a one-off discussion, but a first step in launching a conversation on the priorities and measures for unlocking the energy efficiency potential in Armenia.

**Dr Urban Rusnák, Secretary General of the Energy Charter Secretariat** welcomed Armenia's ongoing efforts to improve energy security and advance energy efficiency. He noted that several strategies and action plans are emphasising the importance of energy efficiency and renewable energy in addressing the energy sector challenges, including the 2013 National Energy Security Concept, the Armenian Development Strategy and National Security Strategy. He acknowledged the successful implementation of the first National Energy Efficiency Action Plan (NEEAP), although even if the results exceeded the overall target, some sectoral targets, including for residential buildings were not met. Finally, Dr Rusnák recalled that in 2016, the Energy Charter Conference endorsed a number of recommendations to Armenia on how to further strengthen the implementation of energy efficiency policies in all sectors. Currently the EU4Energy initiative supports implementation of some of the

recommendations, including on strengthening the legislative and regulatory framework on energy efficiency in buildings.

**Ms Thea Khitarishvili, Senior Manager at the International Energy Agency** welcomed Armenian government's sustained focus on exploiting the most available, secure and affordable energy resource. She praised Armenia's evident leadership in the region in energy efficiency and its ambitious targets for the future. Ms Khitarishvili noted Armenian government's commitment, starting from pioneering energy efficiency legislation more than a decade ago to fulfilling obligations under the first NEEAP, and the adoption of 2nd NEEAP in February this year, which aims to reduce Armenia's baseline energy consumption by 20% (from 2010-2012 levels). She stressed that over 60% of energy efficiency improvement measures are for the residential and public buildings, with a potential to bring down the baseline energy consumption in the buildings sector by 30%. Ms Khitarishvili highlighted that Armenia is one of 88 countries worldwide, along with the European Union, which included energy efficiency building specific measures in their national climate commitment, the NDCs and in 2016 introduced mandatory building energy codes for new buildings, and adopted new regulations on thermal protection of buildings. However, despite success stories, implementation of these well-designed policies is lagging behind, hinting to an evident confidence gap in the chain.

**In the first panel on Mobilizing energy efficiency investments in Armenia – challenges, opportunities and key priorities.** **Deputy Minister Harutyunyan** discussed the main challenges in energy efficiency, namely in energy generation, in public buildings and the residential sector. For the public sector, he emphasized that the government has been leading by example, having kick-started renovations of public buildings with support from the World Bank-initiated R2E2 Fund. The most recent initiative has renovated 64 buildings with 50% energy savings and a 6-7 years payback time, demonstrating to the private sector that financing energy efficiency is viable. Mr Harutyunyan acknowledged that the biggest challenges are in the residential sector, notably in multi-apartment buildings with ownership and management structure problems, and households with mixed incomes, but also a general lack of understanding of the need to invest in energy efficiency. The law on multi-apartment buildings currently in approval process in the government can facilitate this, however, not solve completely. Here, ESCOs are the main vehicles to develop the market, which is why innovative financial tools are needed to experiment with and develop their capacities. Finally, Mr Harutyunyan discussed the need to raise awareness on energy efficiency or "get the virus" of it where people would become interested in energy efficiency measures by looking at what the people around are doing, even if it's a step-by-step approach (*from simple window replacement to the whole envelope – auth.*). Here, focus should be directed on the regions and rural areas in particular to contribute to economic resilience of the rural population, as well as integrating energy efficiency measures with renewables, such as solar panels for heating.

**Dr Urban Rusnák** reiterated the progress made so far in Armenia in energy efficiency through the implementation of policies and programmes, with decoupling of GDP and energy consumption growth being observed. He noted however, that the recent Energy Charter's in-depth energy efficiency review report identified a number of areas needing further attention. He identified the lack of detailed and comprehensive analysis of the potential in various sectors of the economy as a major obstacle to better identify, prioritise and design the right policy options, as well as the financial means to be allocated for their implementation. Dr. Rusnak commended the Armenian government for the progress achieved so far in transposing best EU practices, however he underlined that still a key challenge is to ensure effective implementation and enforcement of already adopted laws and regulations in residential buildings. Finally, implementation of energy efficiency policies and action plans requires sufficient coordination between all involved government institutions throughout the entire process of policy-making, namely policy initiation, formulation, implementation, evaluation and monitoring, both horizontally and vertically.

**Ms Thea Khitarishvili** presented key findings of the IEA Energy Efficiency market report 2017. As the world continued to generate more value from its energy use in 2016 and global energy intensity fell by 1.8% in 2016. According to this study, policies introduced since 2000 have resulted in 12% less energy consumption in 2016 (equal to the energy consumption of EU), and \$50 billion less energy spending, which is mostly thanks to the building envelope improvements. 10-20% is possible to save in every country through appliances, lighting, etc. Global investments in energy efficiency increased by 9%. The ESCOs market grew by 12% amounting to \$26.8 billion. More than 1 million people were employed by ESCOs worldwide. Energy efficiency became a tradable commodity, which is a new and positive development, with Europe leading on white certificates, while the US is leading on digital technology development and supporting energy efficiency participation in electricity markets/capacity auctions. Key highlights of the report show that well-designed policies work. Targets and ambitions of the Armenian government are quite high (20% reduction in total final energy consumption by 2018, and 37% by 2020). However, it is highly relevant for the government to also track their progress, which means there is a need for high quality data, fit for developing energy efficiency indicators, which also need to be comparable with other countries. Concluding, Ms Khitarishvili touched upon the results of the Energy Efficiency Policy and Data Prioritization exercise, carried out by the IEA-led part of the EU4Energy Programme, stressing the importance of maximising untapped potential in residential buildings sector.

**Mr Emil Zalinyan, Energy Specialist from the World Bank in Armenia** presented lessons learned from WB's investment programmes in the buildings sector. He mentioned the project with R2E2 from 2012 which also helped to develop the procurement mechanisms for the Fund and develop ESCOs market. As priorities for the public sector Mr Zalinyan suggested to scale up funding for the R2E2 Fund's revolving mechanism and noted that the very strict eligibility criteria of the Fund limits the scope of its support, therefore grant financing is needed to cover the buildings that are outside the Fund's eligibility criteria (f.e. low energy consumption due to underheating). He also discussed that tariff reforms are needed as prices for both electricity and gas are not cost-reflective, and finally, that multi-apartment buildings have the highest potential where financing mechanisms for investments need to be found.

**Mr Dmitry Mariyasin, Deputy Resident Representative from UNDP Armenia** outlined the main challenges from UNDP's perspective, notably, for the multi-apartment buildings, the absence of a law and subsequent lack of management of buildings (homeowners associations); awareness and behavioural changes that are needed not only by customers, but also the construction sector, which needs to be on board to win over the private sector; and technology for effectiveness and impact of energy efficiency. In terms of the necessary steps, Mr Mariyasin agreed with the Deputy Minister Harutyunyan that experimenting with financing instruments requires grants to create the leverage and boost the ESCOs market. Enforcement of legislation for multi-apartment buildings and the construction sector remains a key task, while awareness raising should not exclude rural households. Among the successful examples for projects that work this direction, he mentioned UNDP's project on de-risking investments in buildings, which has just started this year, the EIB-E5P project working with buildings in Yerevan, as well as projects implemented by R2E2.

**Mr Armen Melkikyan, Director of the Renewable Resources and Energy Efficiency Fund (R2E2)** discussed the experience of the R2E2 Fund with investing in energy efficiency in public buildings. He informed the audience that from the 5800 public buildings, 500 had applied for funding from the R2E2 Fund, 200 were pre-selected and 170 were retrofitted at the end. Mr Melkikyan noted that the uptake of measures as part of the R2E2 revolving fund gives a strong message to the private sector: if public buildings can pay back energy efficiency loans, then private sector can do it as well. For the public sector grants, blending and technical support to municipalities should be continued, while formats of PPPs should be explored as well.

**In reaction to the interventions, Deputy Minister Harutyunyan** noted that public sector projects have been a success, in particular development of revolving funds under R2E2, which now need more and cheap financing. Renewables installation, in particular of solar panels on public buildings would

require some 200m USD investments. Mr Harutyunyan acknowledged challenges in enforcement of legislation, while suggesting that the solution is to do more projects that would support the implementation process. He underlined that liberalization of the energy market will address World Bank's concerns about tariff policy; however, this should be handled carefully as liberalization would bring the highest tariffs for consumers outside Yerevan, who are socially most vulnerable. He finally suggested creating an energy efficiency coordination group under the umbrella of the R2E2 Fund to improve prioritization and scaling up of investments.

**In the second session on residential sector Mr Armen Martirosyan from UNDP in Armenia** presented problems encountered in project implementation:

- Legislation: there are two major laws in this sector – law on “Multi Apartment Building Management” and Law on “Condominium”, however, implementation is lagging behind. The legal gaps in the ownership structure of multi-apartment buildings pose a major barrier, and there are different Ministries managing the process with little coordination, which further complicates the process.
- The associated risks can be addressed by carefully utilizing the ESCOs, remedying the data related issues (lack of data can make up to 3-8% of the investment cost), as well as resistance to change (behavioural issues).

Mr Martirosyan noted the issue of financing since there is a great potential for investments; but very limited resources available, as well as hidden costs. He therefore suggested focusing on:

- Legislation: Revision of the existing laws and national ownership of multi-apartment buildings, energy tariff reforms can be revised as well, ESCO promotion;
- Institutional issues: capacity building for building management bodies for institutional de-risking, developing building databases, investing in MRV;
- Financial: access to public funds, concessional loans, private investments, grants and direct subsidies for building owners and ESCOs.

**Ms Luiza Vardanyan, Executive Director of Habitat for Humanity Armenia** presented the projects implemented by Habitat since 2000, which have focused on management, maintenance and exploitation of multi apartment buildings. The projects sought to develop financial models for residents’ participation, cooperate with municipalities and condominiums for capacity development and raise awareness on energy efficiency and energy saving. In her summary of the main challenges, she underlined these issues:

- Lack of management/absence of homeowners associations or lack of their capacities;
- Lack of interest by residents, partly due to little awareness of their rights, income differences in the buildings and poor payment capacity, lack of trust in condominiums, lack of ownership or sense of responsibility;
- Lack of funds in municipalities or insufficient funding for residential sector, which they often see as “external” to their jurisdiction due to private ownership;
- Long-term lending is not available due to lack of securities: the process of crediting is long and the condominiums do not have adequate securities to offer as collateral.

Ms. Vardanyan recommended to:

- Continue reform of the law on multi-apartment buildings and its enforcement;
- Continue support from public budgets in form of subsidies, as well as governmental support in establishing and capitalizing a guarantee fund;
- Training of staff and educating experts of energy efficient multi-apartment building managers.

**Ms Solomiia Petryna from the European Bank for Reconstruction and Development (EBRD)** presented EBRD’s experience in Armenia. EBRD is currently finalizing a facility which focuses on industrial sector and is about to launch a facility which will focus on residential sector. EBRD has developed mechanisms for coping with the following market barriers:

- Financial reliability of loans (Internal Rate of Return) – the rate of repayment is slow;
- Investments - energy efficiency will increase by increasing investments;
- Lack of reliable technical expertise;

- Level of awareness.

**Mr Sargis Sargsyan from ACBA Leasing** summarized ACBA's investments in energy efficiency since 2003, which amount to 5bn AMD. He stressed that currently many residents are ready to invest in energy efficiency and many households in villages have already done so. Condominiums are not strong in Armenia, thus their concept and legislative basis have to be reorganized. This will also have a social impact for Armenia as stronger condominiums will create more jobs.

***The session on public sector buildings*** sought to address the issue of borrowing for and payback from energy efficient public buildings, on how to integrate building repair costs and ensure that buildings increase their energy performance. **Mr Tigran Sargsyan, Head of Department for Development and Investment Programs of the Municipality of Yerevan**, introduced the Energy Efficiency and Energy Saving Program of Yerevan and mentioned that by 2020 Yerevan is aiming to reduce emissions by 20%, and in the next 15 years to reach 237 thousand tons' reduction of emissions, to ensure 16% of energy savings. The program is based on the First Energy Efficiency Action Plan and the existing legal acts. The Program focuses on transport, public buildings, lighting, multi apartment buildings, etc. The assessments show that main energy expenditure and consumption is in multi apartment buildings sector. From the projects implemented in Yerevan, Mr Sargsyan underlined the EIB and UNDP projects on energy efficiency in buildings, the R2E2 Fund for public buildings (which needs more capital), as well as a new project on transport currently in development process, which will allow reducing the emissions by 3 times.

**MsViolaine Silvestro from the European Investment Bank (EIB)** suggested that the main reasons for low utilization of energy efficiency in public buildings in Armenia are:

- Limited sovereign borrowing capacity;
- Financial viability: seismic resilience and accessibility costs create longer payback periods, and reduce the attractiveness of the investments;
- Lack of awareness;
- Lack of enforcement capacity of primary energy efficiency legislation.

The EIB project in preparation foresees renovation in up to 190 public buildings. This project is transformational because it is the first loan from an International Financial Institution which is given to the Municipality of Yerevan. It will include EU directives, as well as seismic resilience. Comprehensive measures will allow for a shorter payback period, more savings and more buildings. Her recommendations for unlocking energy efficiency investments in public buildings were:

- Monetize the ancillary benefits (resilience, accessibility, increased building lifetime);
- Value secondary benefits, such as job creation, increased quality of municipal services, developing the market for energy efficiency services;
- Adequately blend grant co-financing to allow for financial viability of investments in more comprehensive building retrofits;
- Invest in technical assistance for experts and institutions in energy efficiency procurement, energy auditing, energy efficient building design, certification and labelling;
- Gradually spill-over the lessons-learned and business models to energy efficiency in residential buildings.

**Mr Hrant Ter-Gabrielyan from the R2E2 Fund** presented the public sector projects financed from the R2E2 Fund so far. He noted that due to the limited resources of the Fund, it was decided that if the convenience of the building is less than 50% it makes no sense to implement the project. This led to selection of buildings where energy savings can be up to 20%, excluding with poor quality.

**MrArtem Kharazyan, Covenant of Mayors' national expert for Armenia** presented the Covenant of Mayors East, the aim of which is to have 30% reduction of emissions by 2030 (or 20% by 2020) in all municipalities which have signed up to the Covenant. Mr Kharazyan summarized experience from implementing projects in the signatory municipalities:

- Limited experience of local authorities in developing Sustainable Energy Action Plans (SEAP/SECAP);

- Lack of qualified staff to prepare bankable project proposals for sustainable energy investments and implement the projects;
- “Suppressed” energy consumption in municipal and residential sectors limiting potential for identification of feasible EE projects;
- Low loan absorption capacity of small/average communities with no large energy consuming infrastructures;
- Limited access to funding sources;
- Limited involvement of private sector because of high risks.

**Mr Hayk Galstyan from the Armenian Territorial Development Fund** presented project on seismic safety in public schools, implemented together with the Asian Development Bank. The project aims to build or refurbish around 40 schools. Mr Galstyan underlined the main challenge often being that it is easier to build a new energy efficient building instead of making an existing building more energy efficient.

### **Conclusions**

In the concluding remarks, **Mr Meredith** thanked the speakers for the valuable contributions and summarized that all speakers had noted Armenia's impressive progress in energy efficiency in terms of adopting the necessary legislation, implementing pilot projects and developing revolving funds for the public sector. It is important to build on the lessons learned from the interventions by international donors and government agencies, in particular in the public building sector through the Renewable Resources and Energy Efficiency Fund (R2E2). Mr Meredith underlined that energy efficiency should benefit all Armenians and agreed that rural areas deserve particular attention, as so far, most measures are concentrated in cities. EU's new approach to highlight EU support in specific pilot regions could be considered to channel further EU funding. Here, blending and using existing EU instruments (Covenant of Mayors, E5P Fund, Green for Growth Fund) would play an important role.

**Deputy Minister Harutyunyan** welcomed the event and the targeted discussions, emphasizing the Ministry's commitment to be the "champion" in advancing the necessary measures. He once more underlined the need for financing mechanisms that would allow trying out different models for development of the market and the strong need to come up with innovative solutions for this purpose.