Case Studies

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Timeline:

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Country or/and Region

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Regions: Central Asia, European Union, Global, Western Balkans

Topic:

- ☐ Legislative and regulatory framework
- ☐ Awareness-raising, capacity-building and behaviour change
- ☐ Technical measures
- ☐ Financial mechanisms
- ☐ Management of multi-family and public buildings

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CASE STUDIES:

Country_or_Region

Albania

Timeline:
April 2018 - ongoing

Partners:

Title: Law on Performance of Energy in Buildings

About Case Study:
*Regional Energy Efficiency Programme (REEP) for adoption and integration of EU EE- and BEP-related directives to increase quality of design/construction standards.

Topic: Legislative and regulatory framework

TopicOther:

Key Targets:
*The aim is to support Albania towards implementation of the mentioned Law and EU directives.

Results:
*Both directives transposed into laws, and technical working group (with support of European Bank for Construction and Development) is drafting sub-legislative acts to ensure the Law is fully compliant.

Link:

Country_or_Region
Albania

Timeline:
July 2014 - December 2015

Partners:
Ministry of Urban Development and Tourism, National Housing Agency, International Financial Corporation, UNDP, UNECE, International Financial Corporation (IFC)

Title:
Strengthening the country's capacities on buildings energy-efficient construction and design

About Case Study:
*Ministry of Urban Development and Tourism, National Housing Agency, International Financial Corporation, United Nations Development Programme and UNECE, conducted awareness-raising and series of trainings for specialists working in buildings construction and design sectors, to integrate energy-efficient practices of EE-advanced EU countries.
*In 2014-2015 the Ministry of Urban Development and Tourism and the National Housing Agency of Albania in cooperation with the International Financial Corporation (IFC), the United Nations Development Programme (UNDP) and the United Nations Economic Commission for Europe (UNECE), developed and conducted an awareness rising compaingn and a series of trainings for specialists working in the buildings construction and design sectors in order to integrate energy efficient practices and expiriences of advanced EU countries.

Topic: Awareness-raising, capacity-building and behaviour change

TopicOther:

Key Targets:
*To increase awareness of challenges in the field of energy-efficient housing; to share information and knowledge in the field of legislation, regulations, norms and standards, financing and projects implementation, as well as on country's commitment to reduce energy consumption, especially in residential sector; to pave a roadmap for future activities in this field; to highlight the importance of housing management in retrofitting the existing housing stock.
*To raise awareness of the main challenges that stakeholders are facing in the field of energy efficient housing and to share information on their initiatives especially in the field of legislation, regulations, norms and standards, financing and projects implemented;
*To share information on the country's EU obligation to reduce energy consumption, especially in the residential sector;
*To share knowledge on and assess the needs for energy efficient standards and norms;
*To pave a roadmap for future activities in the field of energy efficiency in the housing sector;
*To highlight the importance of housing (condominium) management in retrofitting the existing housing stock.

Results:
*Raised awareness regarding the benefits of EE in housing for businesses, families, economy and environment.
*A network of 'ad hoc' experts in the field of EE was created to support the programme and further construction.
*Experts enabled partners to assess energy consumption of buildings used before the project was implemented, which served as a benchmark for new investments.
*Albania Strenghtening the country's capacities on energy efficiency construction and design for buildings programme and the further constructions.

Link: https://enerj.interreg-med.eu/

Country_or_Region
Albania

Timeline:
November 2016 - April 2019

Partners:
ANATOLIKI S.A. - Development Agency of Eastern Thessaloniki' Local Authorities, Andalusian Federation of Municipalities and Provinces, Albanian Ministry of Infrastructure and Energy, IRENA-Istrian Regional Energy Agency L.t.d., CEA-Cyprus Energy Agency, Metropolitan City of Capital Rome, GOLEA-Goriška Local Energy Agency, AREANA Tejo-Regional Energy and Environment Agency from North Alentejo, Climate Alliance Italy, Gozo Development Agency – Gozo Regional Committee, Climate Alliance Italy

Title: Joint Actions for Energy Efficiency (ENERJ)

About Case Study:
*Joint Actions for Energy Efficiency (ENERJ) is an Interreg Mediterranean project that aimed to support cities in attaining EE targets in municipal building stock, and to improve coordination of Sustainable Energy Action Plans and other relevant EE plans, to reach energy savings and national targets on EE of public buildings.
*ENERJ aimed at enhancing and improving the coordination of Sustainable Energy Action Plans' (SEAP's) and other relevant energy Efficiency Plans, in order to reach energy savings and the national targets on public buildings' energy efficiency.
*The project developed and tested a technologically oriented methodology that focuses on increasing cooperation among public authorities through Joint Actions.

Topic: Awareness-raising, capacity-building and behaviour change

TopicOther:

Key Targets:
*To target was to develop and test technologically oriented methodology that focuses on increasing cooperation among public authorities; to create ENERJ web-platform to host geo-database on Sustainable Energy Action Plans, other local energy plans, and EE measures, and serve as forum for stakeholders. Also, integrated large-scale Joint Actions for EE, able to achieve economies of scale and impacts on energy consumptions and emissions, and catalyse a range of investments and leverage funds; enhancement of public and private stakeholders' skills to assess, define, adopt, implement and monitor EE actions and plans.

Results:
The achievements were:
*Report "Public buildings energy audits", which aims to collect data on selected public buildings and integrate it with new studies to complete the status quo situation; "Guidelines for Joint Actions for Energy Efficiency", which provide indications on technical and administrative steps needed to plan, design, implement, manage and monitor joint actions for EE; report "Plans and Measures Analysis", which investigates EE plans and measures for partner countries' public buildings, assesses EE-related EU directives and their implementation; "Funding Tool Report" listing funding opportunities to improve EE in public buildings in partner countries.
*Publication of the report Public buildings energy audits which aims to collect existing data on selected public buildings and integrate it with new analyses and studies in order to complete the status quo situation. Publication of the Guidelines for Joint Actions for Energy Efficiency which are intended to provide partner organizations with useful indications on the technical and administrative steps needed to effectively plan, design, implement, manage and monitor joint actions for energy efficiency, preferably within the framework of joint SEAPs.
*Publication of the report Plans and Measures Analysis which investigate on the plans and measures on Energy Efficiency (EE) in the public building stock for each partner country and assesses the EU Directives that are relevant to the EE of public buildings and how they are nationally implemented in each of the partner Countries, along with the other specific laws that are related to EE of buildings.
*Publication of the Funding Tool Report which lists the funding opportunities to improve the energy efficiency of the public building stock in the partners' countries.

Link: https://enerj.interreg-med.eu/

Country_or_Region
Albania

Timeline:
September 2015 -
ongoing

Partners:
Ministry of Infrastructure
and Energy of Albania,
KFW, Department of the
Student City
Administration No.2,
Municipality of Tirana

Title: Energy Efficient Rehabilitation of a Student Campus in Tirana

About Case Study:
*Implementation of energy-efficient solutions for student campus no.2 in Tirana: 4 buildings with total gross floor area 15,624 m² were involved.
*The submitted case study deals with the implementation of energy efficient solutions for a student campus in Tirana.
*Four buildings of Student Campus no.2 have been involved in the project with a total gross floor area for all four buildings is 15,624m².

Topic:

TopicOther:

Key Targets:
*The proposed package of energy efficiency measures aims to:
*Improve thermal comfort conditions in the student dormitories;
*Have more efficient energy use;
*Reduce energy costs;
*Improve the environmental impact (use of renewable energy sources) of the buildings;
*Implement the energy saving measures with the least disruption to the building;
*Monitor savings to confirm that they have been achieved and ensure the maintenance of the buildings.

Results:
*The result was a reduction of buildings' energy consumption by 82 per cent, to 654,593 kWh /year; conversion of buildings to "B" EU energy class; reduction of energy cost to 80,278 euro /year; CO2 reduction to 732,748 kg/year.

Link:
https://intbau-albania.org/wp-content/uploads/2020/12/RETROFITTING-ENERGY-EFFICIENCY-GUIDELINE-FOR-TIRANA.pdf

Country_or_Region
Albania

Timeline: 2019

Partners:

Title: Thermal Performance of School Buildings: A Case Study from Albania

About Case Study:
*This study focuses on the thermal performance of three school buildings (in different cities and climate zones in Albania) in view of energy demand and indoor thermal comfort. Thereby, both on-site data monitoring and numeric thermal simulation were deployed to assess the performance of these school buildings.

Topic: Technical measures

TopicOther:

Key Targets:
*The main objective of this study was to examine thermal performance of and prevailing indoor conditions in (representative) school buildings in Albania.
*Moreover, potential improvement strategies were developed and evaluated.

Results:
*The results of the study point to major deficiencies with regard to both thermal comfort and energy performance of the two existing schools. In comparison to European guidelines, the examined schools show by far too low indoor temperatures within classrooms.
*Results indicate that – with reference to common international standards – the two monitored schools show major deficiencies regarding indoor thermal comfort.
*Based on these considerations, retrofit strategies can be designed and applied.
*Generally speaking, both an improved operation of existing heating devices, and a comprehensive thermal insulation of the two existing schools can be recommended.

Link:

Country_or_Region
Albania

Timeline:
April 2018 - ongoing

Partners:
Ministry of Infrastructure, Energy and Agency for Energy Efficiency, EBRD

Title: Regulatory framework for the Law "On Performance of Energy in Buildings"

About Case Study:
*Starting from 2018, Albania is actively working on the development of the regulatory framework for the Law “on Performance of Energy in Buildings”.
*The Ministry of Infrastructure and Energy and the Agency for Energy Efficiency with support of EBRD are working on the adoption and integration of the EU directives on energy efficiency and energy performance of buildings in order to increase the quality of local design and construction standards.

Topic: Legislative and regulatory framework

TopicOther:

Key Targets:
*The objective, as part of the of the Regional Energy Efficiency Programme (REEP Plus), is to support Albania towards the full implementation of the Energy Performance in Buildings and the EU Directives.

Results:
*Albania has transposed both directives into laws and EBRD is supporting in the drafting of the sub-legislative acts.
*The Energy Efficiency Law, although approved in 2015, was not fully compliant with the directive and now, with the support of EBRD it will be amended into being fully compliant with the directive.

Link:

Country_or_Region
Armenia

Timeline: 2010 - 2016

Partners:
UNDP, GEF, Ministry of Construction, Ministry of Environmental Protection

Title: Buildings Energy Efficiency

About Case Study:
*Increasing local capacity in building sector by introducing best international practices in the field of energy-efficient building construction
*UNDP-administrated and GEF-funded project

Topic: Legislative and regulatory framework

TopicOther:

Key Targets:
*The overall aim is to Improve national regulatory framework, test thermal insulation materials and provide technical assistance to certifying laboratories, raise awareness, deliver educational programmes in building EE design, and demonstrate its benefits.
*Development and implementation of the standard norms and rules and improvement of the national regulatory framework in the field of energy efficiency in buildings;
*Test and certification of the thermal insulation materials and technical support to the partner-laboratories;
*Awareness raising among inhabitants and educational programs in the area of EE building design;
*Demonstration of the benefits of integrated EE buildings design.

Results:
*The project improved the relevant regulatory framework, created conditions for implementation of national EE standards on design, expertise and organization of public procurements in building sector.
*By means of the improvement of the local legislative and regulatory framework, the conditions have been created for the implementation of the high-efficient energy standards on design, expertise and organization of the public procurements in the building sector of Armenia.
*The potential, gained within the project implementation and implemented efficient technologies, became the basis for the further development and introduction of modern energy efficiency measures, and as a result, the project named «Decreasing of risks and investments engagement to the buildings thermal modernization in Armenia» has been granted by Green Climate Fund (GCF).

Link:

Country_or_Region
Armenia

Timeline:
May 2013 - March 2019

Partners:
USAID, Habitat for Humanity Armenia Foundation (HFHA), Habitat for Humanity International, Inc. (HFHI), Yerevan Municipality, Inecobank CJSC

Title:
Residential Energy Efficiency for Low Income Households (REELIH) Project (by Habitat for Humanity Armenia)

About Case Study:
*The project involved local authorities, financial institutions, homeowners, tenants
*It included capacity-building, awareness-raising, advocating for MFB management and maintenance reforms, stimulating EE financing, implementing upgrades.

Topic: Awareness-raising, capacity-building and behaviour change

TopicOther:

Key Targets:
*The aim was to develop and test viable and replicable financial models for implementation of EE measures in residential buildings; mitigate the impact of energy rising prices for low-income households; improve legislative framework for residential EE in Armenia; increase capacity and awareness of homeowner associations.
*The project aimed to improve residential energy efficiency while lowering energy consumption and costs for low-income households. Within the scope of the project Habitat for Humanity Armenia Foundation actively works with local authorities, financial institutions, homeowner associations (HOA), tenants and other key stakeholders in order to promote and improve energy efficiency in residential buildings. The project activities include implementation of energy upgrades of residential buildings, enhancing institutional capacities of HOAs, raising awareness of tenants and HOAs about the multiple benefits of EE measures implementation in the buildings, advocating to implement institutional and legislative reforms that will contribute to efficient management and maintenance of residential housing stock in the country and stimulate energy efficient investments in residential sector.

Results:
*Financial model developed and tested for partial thermal retrofitting of MFB; homeowner associations and tenants gained knowledge on residential EE; EE of 13 MFB upgraded.

Link: https://www.habitat.org/sites/default/files/condominium20research20in20armenia.pdf

Country_or_Region
Armenia

Timeline: 2019

Partners:
World Bank, Global Environment Facility (GEF), Renewable Resources and Energy Efficiency (R2E2) Fund

Title: Energy Efficiency Project

About Case Study:
*This was a pilot project designed to demonstrate a replicable and sustainable model for energy efficiency investments in Armenia's public sector. The project was to finance energy efficiency upgrades and retrofits in public and social facilities and remove barriers that hampered the wide penetration of energy efficiency investments in Armenia's public sector.
* The project was appraised for $10.7 million financed through a Global Environment Facility (GEF) grant of $1.82 million, $8.3 million from government funding, and cofinancing from the implementing agency, the Renewable Resources and Energy Efficiency (R2E2) Fund, estimated at $0.54 million.

Topic: Management of multi-family and public buildings

TopicOther:

Key Targets:

*Through public sector energy efficiency investments, the project intended to demonstrate the viability of energy efficiency investments and their economic benefits.
*The project development objective was to reduce energy consumption of social and other public facilities
*Its global environmental objective was to decrease greenhouse gas emissions through the removal of barriers to the implementation of energy efficiency investments in the public sector.
*Technical assistance was geared to help remove the existing barriers to the realization of energy efficiency potential and create an enabling environment for energy efficiency in Armenia's public sector. These interventions were to lead to reduced energy consumption in public and social facilities and a decrease in greenhouse gas (GHG) emissions in Armenia

Results:
*The project financed energy efficiency retrofits and upgrades in eligible public and social buildings in Armenia.
*63 subprojects were completed at project closure, estimated to result in lifetime energy savings of about 540.2 million kilowatthours and CO2 emission reduction of about 145,700 tons.
*The results were almost three times the original targets set at appraisal: 216 million kilowatt hours and 50,500 tons equivalent of CO2. The project invested in 124 public buildings, exceeding its target, though this represented only a small fraction of the overall needs.

Link: https://ieg.worldbankgroup.org/sites/default/files/Data/reports/ppar_armeniaenergy.pdf

Country_or_Region
Armenia

Timeline: 2014

Partners: UNDP

Title: Energy Efficient Public Buildings and Housing in Armenia (NAMA)

About Case Study:
*Nationally Appropriate Mitigation Actions (NAMAs) are mitigation actions, programmes or policies voluntarily undertaken by developing countries in the context of sustainable development, supported and enabled wholly or in part by technology, financing and capacity building from developed countries. Armenia has voluntarily committed to the Copenhagen Accords to develop and implement NAMAs
*Improving energy efficiency in the building sector has been assigned high priority in Armenia's climate, energy, and housing strategies. This NAMA will focus on new construction and capital renovation, as well as maintenance/management of those buildings which are supported by public means and/or owned and managed by public institutions.

Topic: Management of multi-family and public buildings

TopicOther:

Key Targets:
*To promote improved energy efficiency, the NAMA project targeted the following key objectives:
- To increase the availability of finance for investments in energy efficiency in public building and social housing.
- Support the policy, regulatory, institutional, and market transformation leading to a higher level of energy efficiency of structures and decreased GHG emissions from the building sector.
- Contribute to improved energy performance of public buildings in health, educational, cultural and other sectors, improving comfort level, cutting public budget allocations for energy bills, while improving the overall quality of public services.
- Support the provision of adequate and affordable housing in Armenia using integrated building design concept, and contribute in reducing the total costs for operation of buildings, decreasing public costs and costs for the users/clients.
- Contribute to the development objectives of Armenia (environment, economic, and social), related to the construction and building sector. - Support transformational change to a low-emission development path in the longer term.
- Contribute to improving Armenia's energy security.

Results:
*Direct impact: GHG emission reduction in new construction/renovation/management in public buildings and housing supported by public means (direct NAMA scope). This includes promoting energy efficiency in planned investment programs as well as in new investment programs.
*Indirect impact: scaling-up potential on all construction and housing sector (commercial and private new construction and renovation in housing; commercial/private buildings) through the following NAMA activities:
- Improved enforcement on construction norms with impact on energy efficiency
- Improved enforcement of legal – regulatory provisions on energy efficiency;
- Information and awareness campaigns
- Market transformation (supply and demand for energy technology, practices, services)

Link:
https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&ved=2ahUKEwjE-a-WoIn1AhUf7rsIHShpCAIQFnoECAoQAQ&url=https%3A%2F%2Fwww4.unfccc.int%2Fsites%2FPublicNAMA%2F_layouts%2FUN%2FFCCC%2FNAMA%2FDownload.aspx%3FListName%3DNAMA%26Id%3D70%26FileName%3DNAMA%2520housing%2520Armenia%2520project%2520document.pdf&usg=AOvVaw3KS2cefo_0JeReSqAfOO-a

Country_or_Region
Armenia

Timeline:
2001 - ongoing

Partners:

Title: Energy Law of the Republic of Armenia

About Case Study:
*The Energy Law of the Republic of Armenia provides policies and regulations for the whole energy sector of the country.

Topic: Legislative and regulatory framework

TopicOther:

Key Targets:
*The basic principles of the policy are: efficient use of domestic energy resources and alternative sources of energy and implementation of economic and legal mechanisms for that purpose;enhancement of the energy independence of the Republic, including the differentiation of domestic and imported energy resources and ensuring the maximum utilization of generating capacities;enhancement of competition and efficient operation in the energy sector;encouragement of investments in the energy sector;ensuring transparency of the licensed operations in the energy sector;ensuring safety in the energy sector and protection of the environment.

Results:

http://www.minenergy.am/
Link: https://www.iea.org/policies/380-energy-law-of-the-republic-of-armenia

Country_or_Region
Belarus

Timeline:
January 2015 - June 2017

Partners:
Department of energy efficiency of the Gosstandard, Ministry of Architecture and Construction of Belarus, Hrodna city Administration, UNDP Belarus
Hrodnapromstroy PSC

Title: Energy efficient residential house

About Case Study:
*The case study from Belarus concerns the creation of an energy efficient residential building in the municipality of Hrodna using cutting-edge engineering solutions to reduce the fuel consumption for heating and hot water supply needs.
*Building energy-efficient MFB in municipality of Hrodna using cutting-edge engineering solutions to reduce fuel consumption for heating and hot water supply.

Topic: Technical measures

TopicOther:

Key Targets:
*The project aimed to decrease the annual heat power consumption up to 15 kWh/m² per year and up to 30% for the hot water supply.
*The following equipment was installedto achieve the targets:
- managing supply and exhaust ventilation system with heat power recuperation;
- heat recovery system for wastewater;
- two heat pumps as the key heat power source;
- photovoltaic batteries (total panels surface 400 m²).

Results:
*Ventilation with heat recuperation; wastewater heat recovery; 2 HP as key heat power source; PV (400 m²) installation led to A+ class rating, heat power for heating of 340,000 kWh/year and for hot water supply of 300,000 kWh, and actual electricity production in 2017-2018 of 50,000 kWh/year
*Increased air quality and improved temperature and humidity conditions in the building;
*Energy conservation by means of the improved buildings parameters while its exploitation
*Implementation of modern technical solutions in the field of secondary and renewable energy sources use;
*Application of modern energy efficient technologies;
*Awareness increase on the eco-friendly behavior among the inhabitants.

Link:

Country_or_Region
Bosnia and Herzegovina

Timeline:
July 2015 - September 2017

Partners:
Habitat for Humanity, USAID, Enova Sarajevo, Ministry of Spatial Planning and Environmental, Protection of Tuzla Canton, Municipality of Banovii, Municipality of Živinice, Municipality of Graanica, Municipality of Gradaac, Municipality of Tešanj

Title: Residential Energy Efficiency for Low Income Households (REELIH)

About Case Study:
*The REELIH project established by Habitat for Humanity with the financial participation of USAID seeks to demonstrate that integrated efforts in this sector – both at the regional and national levels – addressing market, capacity and knowledge gaps will bring significant improvements to the living conditions of the low-income families in multi-unit apartment buildings, reduce energy costs and carbon emissions.
*The project is focusing on developing a regional effort, resources and networks to address the impact of rising energy prices on collective housing.
*REELIH develops a sustainable model for the financing and management of residential energy efficiency improvements in selected multi-unit apartment buildings in five municipalities in Bosnia and Herzegovina.

Topic: Technical measures

TopicOther:

Key Targets:
*The aim was to improve regional investment conditions through knowledge-sharing (including technical), awareness-raising and advocacy; promote entrepreneurial solutions; help job creation; develop and test replicable financing models; development and improvement of management and maintenance of MFB homeowner associations and/or other stakeholders in public/private sectors.
*Improve the REE investment environment in the region through a regional platform for knowledge sharing, awareness raising and advocacy, addressing financing approaches, promoting entrepreneurial solutions, developing jobs and making available appropriate technical information;
*Develop and test replicable financing models combining capital and subsidies for lower income households to decrease energy consumption and cost;
*National institutional capacity development and improve the management and maintenance of collective residential units by homeowner associations and/or other stakeholders in the public and private sectors.

Results:
*Reduction of energy cost to 24,465.45 US dollars/year; reduction of buildings' energy consumption – 527,403.45 kWh/year; CO2 emissions reduction – 151.16 tons/year, achieving savings in energy for heating of 37.13 %
*7 buildings renovated;
*Energy efficient buildings with thermal insulation on outer walls and roofs;
*Improvement of the environmental impact of buildings;
*Lower energy consumption for heating, less costs for heating and CO2 emission reduction.

Link:

Country_or_Region
Bosnia and Herzegovina

Timeline: 2009 - 2013

Partners:
Food and Agriculture Organization, UNDP, UNEP, UNESCO , UN Volunteers

Title:
Energy efficiency and renewable energy sources in Bosnia and Herzegovina - Mainstreaming environmental governance: linking local and national action programme

About Case Study:
*A multi-pronged approach was chosen to target various stakeholders, with a heavy emphasis on the following sub-sectors: energy efficiency (EE), renewable energy sources (RES) and public buildings.

Topic: Awareness-raising, capacity-building and behaviour change

TopicOther:

Key Targets:
*The goal was to boost local management of environmental resources and service delivery by improving environmental governance and developing replicable models for environmental planning.
*The main objectives of the Programme were to reduce fossil fuel usage, decrease CO2 emissions, and reduce energy costs in public buildings, which would also cut public expenditure.

Results:
* Improved local level environmental planning
*Enhanced management of environmental resources and delivery of environmental services
*Increased national environmental awareness and action, localizing and achieving the MDGs
*The programme highlighted that several smaller-scale projects can have a greater impact as they allow for a decentralization of the benefits (energy savings, health improvements, local economic growth, “green jobs”, awareness-raising, etc.) to be spread across the country.

Link:
https://www.sdgfund.org/case-study/energy-efficiency-and-renewable-energy-sources-bosnia-and-herzegovina
https://www.sdgfund.org/sites/default/files/Case%20Study%20-%20Bosnia%26Herzegovina%20-%20EN.pdf
http://www.mdgfund.org/sites/default/files/BiH%20-%20Environment%20-%20Final%20Evaluation%20Report.pdf

Country_or_Region
Georgia

Timeline:
July 2016 - August 2016

Partners:

Title: Energy Audit Report for “m2” Residential Building

About Case Study:
*Evaluation of measures aimed to improve the quality of internal comfort for inhabitants and decrease the specific energy consumption.
*This case study deals with energy auditing for “m2” Residential building and presents an approach to potential energy efficiency solutions finding and evaluation. It describes a common approach to the evaluation of measures aimed to improve the quality of internal comfort for inhabitants and decrease the specific energy consumption.

Topic: Management of multi-family and public buildings

TopicOther:

Key Targets:
*The main objectives of the project are:
- Identification of energy saving potential in residential building;
- Identification of energy efficiency measures;
- Calculation of energy savings;
- Calculation of CO2 emission reduction.

Results:
*Energy audit of the selected residential buildings revealed potential energy savings of 1,346,332 kWh/year and CO2 emissions reduction of 255 tons/year.
*Upgrading of the building using energy afficient and renewable energy solutions;
*Local beneficiaries trained in operation and maintanance of clean energy technologies;
*Project informational promotional materials prepared and disseminated to raise awareness among the public and the residents;
*Study tour for representatives of other Covenant of Mayors municipalities and media to the project sites to share knowledge and experience.

Link:
https://www.eecgeo.org/en/project_BP_new.htm
http://www.inogate.org/documents/INOGATE_Awareness-raising_Workshop_Ioseb_Vardoshvili_en.pdf

Country_or_Region
Georgia

Timeline:
April 2017 - November 2018

Partners:
NEFCO, Energy Efficiency Centre Georgia, Allplan

Title:
Training and Certification of Private Sector Energy Auditors and Awareness Campaign for Energy Efficiency in Buildings

About Case Study:
*The project consisted in the training of 40 energy auditors in energy efficiency principles and energy auditing in buildings and to conduct 50 energy audits in public buildings.

Topic: Awareness-raising, capacity-building and behaviour change

TopicOther:

Key Targets:
*The project aimed to increase the motivation and awareness of managers of municipal departments or public buildings; staff responsible for the daily energy management, maintenance and operation of the public buildings; municipality staff in charge of developing and controlling the budget of the public buildings.
*In the framework of the project, twenty-five energy auditors have been trained with the objective to carry out energy audits in the future.
*The training programme was devoted to private individuals with experience in the field of energy efficiency and/or buildings, public officers in charge of/or with experience in building management, and students.

Results:
*Of 77 training participants (experienced individuals, officials, students), 61 completed theoretical part, 39 started audits, and 20 finished audit reports. Of 122 buildings selected for pilot phase, 51 were involved in audit, of which 27 audit reports are finished.
*Awareness raising and increase of local specialists capacity;
*Expanding of practical and theoretical experience of managers of municipal departments or public buildings; staff responsible for the daily energy management, maintenance and operation of the public buildings; municipality staff in charge of developing and controlling the budget of the public buildings;
*Identification of energy saving potential in public buildings.

Link:

Country_or_Region
Georgia

Timeline:
September 2015 - June 2016

Partners:
BP, Winrock Int., USAID,
Energy Efficiency Center
Georgia

Title: Warm Elderly – Energy Efficiency Measures for Tbilisi Elders Boarding House

About Case Study:
*The Covenant of Mayors is a European movement involving local and regional authorities who voluntarily commit to increasing energy efficiency and use of renewable energy sources on their territories. By their commitment, Covenant signatories aimto meet and exceed the European Union 20% CO2 reduction objective by 2020.
*The city of Tbilisi has joined the movement and committed to several targets by 2020. One of this targets is the renovation of municipal buildings following the standards for improved energy efficiency and use of renewables. This projects falls under this objective.

Topic: Technical measures

TopicOther:

Key Targets:
*To assess social, technical, economic and environmental aspects of the introduction of renewable energy and energy saving solutions in community facilities, regional, municipal and local, self-government in Georgia;
*To promote the benefits of energy-saving technologies and practices in the state, municipal and community buildings among the energy managers or other decision makers responsible for energy related issues;
*To demonstrate that the application of clean energy solutions in Georgia has the potential to meet energy demand, resulting in increased level of comfort along with energy bill and emissions' reduction;
*To raise awareness on how energy resources are used in the workplace and how actions can directly affect energy consumption;
*To Contribute to the capacity building of Georgian municipalities and self-governments in the development of the energy efficiency policies and local action plans.

Results: *Achieved energy conservation (compared to baseline):
- 9,000 US dollars;
- 185,028 kWh;
- Average payback period = 9.3 years;
- 31.4 tons of CO2 emission reduction.

Link:
https://www.eecgeo.org/en/project_BP_new.htm
http://www.inogate.org/documents/INOGATE_Awareness-raising_Workshop_Ioseb_Vardoshvili_en.pdf

Country_or_Region
Georgia

Timeline: 2015 - 2017

Partners:
Sustainable Development and Policy Center (SDAP), Rustavi City Municipality Officials, Kindergardens staff

Title: Retrofitting 3 kindergartens in the city of Rustavi

About Case Study:
*EE-oriented retrofitting, aimed at creating an example that could be replicated in other cities.
*This project deals with the retrofit of three kindergardens in the city of Rustavi to make them more energy efficient.
*The project was conducted in cooperaton with different partners and aimed to create an example which could be replicated in other cities in Georgia.

Topic: Technical measures

TopicOther:

Key Targets:
*To create a business case of a public buildings retrofitting; use RES and more energy-efficient technologies.
*The project is an example of a retrofit of public buildings and aimed to use renewable energy sources and more energy efficient technologies to improve the construction and operation of three kindergartens in Rustavi.

Results:
*The company's $290,000 investment will allow home owners to collectively save 903.81 MWh/year in electricity consumption and reduce their greenhouse gas emissions by 245 tonnes/year.

Link: https://ebrdgeff.com/projects/local-supplier-helps-customers-make-greener-choices/

Country_or_Region
Georgia

Timeline:
2020 - ongoing

Partners:
Parliament of Georgia,
Ministry of Economy and
Sustainable Development
of Georgia, Energy
Community Secretariat,
KfW, French Agency for
Development AFD.
EU4Energy

Title: Law on Energy Effiicency

About Case Study:
"*The policies will enable Georgia to increase its energy security and improve the energy performance standards for new constructions and building retrofits in line with EU standards.
*Under the new laws, all buildings will have to meet minimum energy performance requirements. Building-owners will need to issue an energy performance certicate when a building is sold or rented. At the same time, regular inspections of heating and air conditioning systems will ensure energy savings.
*The reforms are also financially supported with a EUR 150 million policy-based loan tranche from KfW and the French Agency for Development AFD.

Topic: Legislative and regulatory framework

TopicOther:

Key Targets:
"*The two laws enable Georgia to reduce energy intensity while strengthening resilience of the economy. The country will be able to achieve energy savings of 14% by 2025.
*The legislation opens new investment opportunities with greener technologies while boosting the usage of energy from ecologically cleaner sources.
*It paves the way for significant investments in public building renovation programmes in the amount of EUR 80 million from EBRD and the German Bank KfW, as well as EUR 26 million in investment grants and EUR 8.5 million in technical assistance from the EU."

Results:
*The new law will ensure that buildings are more energy efcient and energy waste is reduced. As a result, citizens will benet directly from lower energy bills, a higher level of comfort, and a healthier home environment.

Link:
https://www.cbw.ge/economy/how-the-new-law-on-energy-efficiency-of-buildings-will-benefit-georgian-citizens
https://www.bsenergyweek.com/wp-content/uploads/2020/06/Market-update_Georgia.pdf
http://seff.ebrd.com/cs/Satellite?c=Content&cid=1395291825491&pagename=EBRD%2FContent%2FContentLayout

Country_or_Region
Kazakhstan

Timeline: 2011

Partners: UNDP

Title: Energy Efficiency in school buildings

About Case Study:
*UNDP started its project with Astana schools in 2011 by giving it 15,000 USD to obtain modern heat-regulating equipment from Denmark.

Topic: Management of multi-family and public buildings

TopicOther:

Key Targets:
*The main problem of the school buildings was an inability to get the heat to individual rooms once it arrived. The old post-Soviet buildings have some of the most energy-inefficient heat distribution systems. With the heat supplied centrally, these buildings lack automatic control systems that would control and balance the heat flow – resulting in up to 30% of the heat loss annually.
*The project aimed to overcome those inefficiencies

Results:
*As a result of the project, the school managed to install new heating system, fortify its walls and windows, and improve the ventilation system.
*With UNDP expertise, cutting edge heat-regulating equipment was placed in a number of existing buildings piloted by project, and proved its efficiency.
*The school achieved a 25 percent savings in our heating bill
*In 2011 one project site was attended by the President and Prime-minister of Kazakhstan visited pilot project territories, and this visit triggered significant governmental investment in energy efficiency in residential buildings. Newly adopted state program on utilities modernization incorporated all accrued progress of the project records and will allocate another 2.4 billion US dollars to energy efficiency, converting pilot UNDP project efforts into a country-wide state programme.

Link:
https://www.kz.undp.org/content/kazakhstan/en/home/ourwork/our_stories/unlocking-energy-efficiency-in-kazakhstan.html

Country_or_Region
Kazakhstan

Timeline:

Partners: UNDP, GEF

Title: Smart Energy in schools

About Case Study:
*UNDP helped the school put in place new energy-efficient windows so that heat does not escape the building anymore.

Topic: Management of multi-family and public buildings

TopicOther:

Key Targets:
*The goal was to help make schools more energy efficient with green technology while at the same time giving the pupils a memorable lesson in sustainability.

Results:
*Solar panels, installed by UNDP, connect the school to warm water and help it save up to 50 per cent on its electricity bills.
*The installation of LED lightning in classrooms helped the school reduce its power consumption, saving US$115 per year, while lighting quality increased ten-fold.
*Using improved lighting technology helped Vyacheslavka School cut its power consumption by a staggering 80 per cent.
*Along with these innovative solutions, the school came up with the idea to create its own underground greenhouse using phytodiode lamps which emit light that halves the growing time for plants. Fresh vegetables are now available in the school all year around.
*Besides saving the school money, energy issues have also been integrated into the curriculum. This helps teachers and students better understand the relevance of energy efficiency in their lives.

Link:
https://www.kz.undp.org/content/kazakhstan/en/home/ourwork/our_stories/warming-up-to-success--schools-embrace-smart-energy.html

Country_or_Region
Kyrgyzstan

Timeline: 2008 - 2015

Partners:
Government of the
Kyrgyz Republic, Global
Environmental Facility,
UNDP

Title: UNDP-GEF Medium-Size Project (MSP)

About Case Study:
*The project aims at reducing energy consumption and associated GHG emissions in Kyrgyzstan building sector by 30-40% as compared to the current level by:
(1) adopting and enforcing mandatory building energy performance codes, standards and labels (the Energy Pass) in line with internationally recognized best-practices;
(2) demonstrating feasibility and viability of an integrated design approach for energy efficiency in public buildings;
(3) building capacity of building and construction professionals to implement new building regulation; and
(4) establishing a system to monitor energy consumption and CO2 emissions in Kyrgyzstan building sector.

Topic: Technical measures

TopicOther:

Key Targets:
*Project objective: Reduce energy consumption and associated GHG emissions in Kyrgyzstan building sector
*Outcome 1. Improved energy performance codes
*Outcome 2. Improved enforcement of mandatory energy efficiency building codes
*Outcome 3. Pilot projects utilizing an integrated design approach
*Outcome 4. Promotion of best energy design and building practices in construction sector
*Outcome 5. Monitoring of building energy consumption and GHG emissions

Results:
*The overall rating of the project is satisfactory.
*The project delivered most of planned results, although not all of them.
*Except for quantitative project achievements described above, the main contribution of the project is that it served as genuine catalyst of energy efficiency in Kyrgyzstan
*All three targets that were not fully reached are very ambitious and it was not realistic to achieve some of them as stated already in the MTE (80% compliance rate), especially when taking into account the limited budget of the project and limited institutional capacities compared to similar projects in the region

Link:
https://www.undp.org/content/dam/kyrgyzstan/docs/energy-and-environment/2008/UNDP-kgz-00062794_ProDoc_Energy_Efficiency_in_Buildings_ENG.pdf
https://erc.undp.org/evaluation/documents/download/7695
https://www.thegef.org/projects-operations/projects/3425

Country_or_Region
Kyrgyzstan

Timeline: 2020

Partners: KyrSEFF

Title: KyrSEFF loan for private home

About Case Study:
*The KyrSEFF loan amounting to US$ 17,195 allowed Zamirbek Jakypov to conduct the full insulation of his house. He installed energy-efficient windows and a highly efficient boiler, and insulated the walls and ceiling.
*With the US$ 3,152 grant, Mr Jakypov plans to complete the interior decoration of the house.

Topic: Management of multi-family and public buildings

TopicOther:

Key Targets:
*The objective of the investment was to improve energy efficiency and reduce energy consumption and, consequently, lower CO2 emissions

Results:
*KyrSEFF consultants have estimated that as a result of this investment in the insulation of the newly constructed house, energy savings will represent 37 MWh per year, and CO2 emissions will be reduced by 29 tonnes annually.

Link: https://ebrdgeff.com/projects/family-housewarming-in-kyrgyz-village-tash-dobo/

Country_or_Region
Kyrgyzstan

Timeline: 2020

Partners:
KyrSEFF, KICB

Title: Logistics centre in Bishkek built with energy efficient technologies

About Case Study:
*The building needed complete reconstruction to meet high international standards for storage conditions of goods, as well as with regard to energy resources use.
*In 2018, the company approached KyrSEFF for a loan and for consultation services. KyrSEFF's engineers and financial experts analyzed the planned investments, focusing on the energy saving potential, technical and financial parameters, and environmental aspects.
*The partner bank, KICB, then approved the project plan for the modernisation of the building

Topic: Management of multi-family and public buildings

TopicOther:

Key Targets:

Results:
*KyrSEFF consultants have estimated that as a result of the $467,000 investment in the renovation project of the old building, the new logistics center will save 456 MWh of energy and reduce CO2 emissions by 20.6 tonnes annually.
*The total energy savings will amount to US$ 9,730 per year. As a reward for the successful implementation of resource saving measures, Smart Logistics will receive a grant of US$ 70,040 from the European Union.
*Today, the 8,000 m² warehouse is fully computerized and needs to be serviced by no more than 50 people. The room has 5 sections for storing goods of different sizes, as well as a mezzanine room for the safe storage of pharmaceutical products and small valuable objects. The company has the opportunity to receive goods by railroad tracks, and unload 8 trucks at the same time.

Link:
https://ebrdgeff.com/projects/the-first-big-logistics-centre-in-bishkek-built-with-energy-efficient-technologies/

Country_or_Region
Montenegro

Timeline:

Partners: UNDP

Title: Making houses energy efficient and legal

About Case Study:
* People in approximately 100,000 illegally constructed homes and buildings could draw on low-cost loans to invest in energy efciency measures such as new insulation, doors and windows. These measures cut their energy bills. The savings are enough to pay back the loans in a reasonable time, and legalize the properties, with titles that guarantee property rights. Broader benets accrue through increased tax collection and better public services.
*UNDP developed the approach, and to test it, enlisted four households in an illegal settlement on the outskirts of the town of Bijelo Polje.

Topic: Management of multi-family and public buildings

TopicOther:

Key Targets:
*UNDP has estimated that retrotting and legalizing all 100,000 illegal buildings over the next decade would bring benets to the nation as a whole, increasing tax revenues by 2.5 percent, for example, and gross domestic product by 1.5 percent a year.
*After four years, Montenegro would no longer need to import energy for electricity, increasing its self-reliance and energy security
*Estimations show that it could bring some 400 million euros in taxes over the next seven to eight years, money that could be reinvested in improving the living conditions in illegal settlements.
*Another benet: the potential creation of up to 20,000 new jobs in construction and other businesses.

Results:
*Energy effciency improvements made four pilot homes more comfortable, and yielded cost savings to pay for refurbishments and legalization.
*Retrotting and legalizing all 100,000 of the country's illegal buildings over the next decade could bring huge benets, such as a 2.5 percent increase in tax revenues.

Link:
https://www.me.undp.org/content/montenegro/en/home/ourwork/economyandenvironment/successstories/Legalization.html

Country_or_Region
Republic of Macedonia

Timeline:
2015 - ongoing

Partners:

Title: Improved Management to Energy Efficiency of MFH

About Case Study:
*The proper management of MFB is crucial for EE improvement, especially in post-Soviet countries. Abandoned mechanisms for maintenance and management that existed at the previous social system preconditioned establishment in 2015 of residential management company "Habidom" by the Habitat for Humanity Macedonia.
*The proper management of multi-family apartment buildings is a crucial element to improve their energy efficiency, especially in post-comunist countries. Abandoned mechanisms for maintenance and management of MFH that existed during the previous social system and lack of new models, motivated Habitat for Humanity Macedonia to establish a residential management company, called "Habidom".

Topic: Management of multi-family and public buildings

TopicOther:

Key Targets:
*To improve management of MFB and thus increase access to financing for EE upgrades, facilitate homeowners' joint decision-making process on retrofitting common spaces.
*The main objective of the project is to improve the management of MFH and thus increase the access to finance for energy efficiency upgrades. Improving the management of multi-apartment buildings, providing better services, granting access to finances for energy efficiency upgrades and facilitating the process of joint decision among homeowners to retrofit common spaces is the core business of Habidom.

Results:
*Reduction of energy consumption is 319.628 kWh, of CO2 emissions –121.5 tons and and reduction of energy consumption of 319.628 kWh/annual.
*Habidom was established in 2015, and up to date is managing 2.332 households in 100 multi family apartment buildings. This means improved management, services and access to finance for those households managed by Habidom. Two buildings have complete energy efficiency retrofitting (changing windows, doors, applying thermo-facade, roofing and upgrades of common spaces), while one building is still under work. Habidom provides homeowners with access to finance for elevators repairments and direct services to renovate stairs and common spaces. Also, electricity network and lightening of common spaces in the buildings managed by Habidom have been significantly improved, leading to lower consumption of electricity.

www.habidom.com.mk
Link: www.habitat.org.mk www.domuvanje.org.mk

Country_or_Region
Republic of Macedonia

Timeline:
2009 - ongoing

Partners:
Habitat for Humanity Macedonia (HFHM), the Microcredit Foundation "Horizonti", Saving House "Moznosti" and private companies;

Title:
Energy Efficiency Homes for Low-Income Households (by Habitat for Humanity Macedonia)

About Case Study:
*In the frames of USAID-financed project on EE in MFB (2011-2015), a unique loan product was developed and offered to homeowner associations to improve EE in low-income MFB. Elaboration of 6 financial models to support households.
*The case study deals with the elaboration of 6 financial models to support households, expeciall those with low-income, to reduce their energy consumption from 20 to 40%. In the frame of the USAID financed project on EE in multi-apartment buildings (2011-2015), an unique loan product has been developed and offered directly to homeowners associations to improve energy efficiency in MAB. Partner organizations developed and delivered loan products for individual houses, covering also vulnerable groups and rural areas.

Topic: Financial mechanisms

TopicOther:

Key Targets:
*To develop financial models and a set of activities to help low-income MFB households reduce vulnerability to energy price; reduce buildings' environmental impact while ensuring their comfort.
*The main objective of the project is to develop sustainable financial models and set of activities to help Macedonian households living in multi-family apartment buildings to reduce their vulnerability to the energy price increase and decrease the environmental impact of buildings while increasing their comfort. The project and the loans are especially focused on low-income households giving them the access to improving their houses.

Results:
*Over 1900 apartments in 60 MFB have been retrofitted, resulting in energy savings 7,910 MWh/year and CO2 emissions reductions 3,670 tons/year. Local governments introduced supporting subsidy schemes. Microfinance organizations were motivated to develop loans for EE in housing, reaching out to homeowners from vulnerable groups, especially those in rural areas.
*Since 2009, Habitat Macedonia is actively involved in energy efficiency retrofitting of multi apartment buildings. Energy efficient reconstructions have been carried out on more than 60 apartment buildings in Macedonia with over 1900 apartments, resulting in overall annual energy savings of 7910 MWh and annual reductions of CO2 emissions of 3670 t. As a result of Habitat involvement in energy efficiency retrofitting of MAB, several local governments in the Republic of North Macedonia introduced subsidy schemes to support homeowners. Also, microfinance organizations, which are long term partners of Habitat Macedonia, were motivated to develop and promote loans for energy efficiency in housing, reaching more homeowners among vulnerable groups and in rural areas.
*The key benefits include subventions from the municipal budget for energy efficiency upgrades of multi-family apartment buildings and the involvement of motivating the Microcredit Foundations to develop and offer loans to vulnerable groups and to homeowners in rural areas.

www.habitat.org.mk
Link: www.domuvanje.org.mk

Country_or_Region
Republic of Macedonia

Timeline: 2020

Partners:
Green Economy Financing Facility (GEFF), European Union (EU), Austria, Western Balkans Investment Framework (WBIF)

Title: Building energy efficient home in Skopje

About Case Study:
*Toni Popov from Skopje invested in a heat pump, insulation of roof and windows for his new house. This investment was too high to be covered with his own funds and therefore he was seeking for a bank loan.
*WB GEFF Programme was a great choice as Toni says, as it combined bank loan with a financial grant, which was crucial at the time when the investment was planned.
*Investment: heat pump, insulation of roof and windows

Topic: Management of multi-family and public buildings

TopicOther:

Key Targets:
*The homeowner invested €41,800 in best-in-class technologies to provide comfortable home for his family with minimum energy costs. After the investment was completed, Popov family received an EU incentive of €8,360 or 20% of the investment loan.

Results:
*The Skopje family has helped for a cleaner living environment by saving even 86 MWh energy per year.

Link:
https://ebrdgeff.com/macedonia/projects/building-an-energy-efficient-home-in-north-macedonia/

Country_or_Region
Republic of Macedonia

Timeline: 2020

Partners:
Green Economy Financing Facility (GEFF), European Union (EU), Austria, Western Balkans Investment Framework (WBIF)

Title: Building energy efficient home

About Case Study:
*The homeowner, Toma Janakievski invested in new windows, insulation of roof and heat pump. After investing in green technologies worth a total of €19.500; the Skopje family was granted to an EU incentive of €3,900, which was an important motivation factor for them to make the investment.

Topic: Management of multi-family and public buildings

TopicOther:

Key Targets:
*Not only they had issues with insulation in the house but the sound insulation was also very poor. Being located in the main street, it was a real problem for the family and they felt discomfort in their own house.

Results:
*This investment helped the family to create more comfortable living conditions but also reduce the energy consumption and bills. Today, Janakievski family keeps the house warm and also contributes to reducing air pollution by saving 11,6 MWh energy and avoiding 2,55 tonnes of CO2 per year.

Link:
https://ebrdgeff.com/macedonia/projects/homeowner-in-north-macedonia-keeps-his-home-warm-with-energy-efficient-investments/

Country_or_Region
Republic of Macedonia

Timeline: 2020

Partners:
Green Economy Financing Facility (GEFF), European Union (EU), Austria, Western Balkans Investment Framework (WBIF)

Title: Refurbishinig a student dormitory, ‘Goce Delcev’ in Skopje

About Case Study:
*The homeowner, Toma Janakievski invested in new windows, insulation of roof and heat pump. After investing in green technologies worth a total of €19.500; the Skopje family was granted to an EU incentive of €3,900, which was an important motivation factor for them to make the investment.

Topic: Management of multi-family and public buildings

TopicOther:

Key Targets:
*Not only they had issues with insulation in the house but the sound insulation was also very poor. Being located in the main street, it was a real problem for the family and they felt discomfort in their own house

Results:
*This investment helped the family to create more comfortable living conditions but also reduce the energy consumption and bills. Today, Janakievski family keeps the house warm and also contributes to reducing air pollution by saving 11,6 MWh energy and avoiding 2,55 tonnes of CO2 per year.

Link:
https://ebrdgeff.com/macedonia/projects/homeowner-in-north-macedonia-keeps-his-home-warm-with-energy-efficient-investments/

Country_or_Region
Moldova

Timeline: 2014 - 2018

Partners:
Ministry of Economy and Infrastructure; Ministry of Agriculture, Regional Development and Environment; Chisinau City Hall; Energy Efficiency Fund; Energy Efficiency Agency; Ministry of Finance, banking sector, private sector

Title:
ESCO Moldova - Transforming the market for Urban Energy Efficiency in Moldova by introducing Energy Service Companies

About Case Study:
*The EE projects financing scheme can rely on three sources of financing as follows:
(1) ESCO investment: The ESCO will finance about 20% of the whole investment. Such a project financing component is related to technical services and soft costs.
(2) EE project financing by a commercial bank: The selected financial institution (commercial bank) will provide the financing up to 80% of the project cost. The guarantee is provided to the local lending institution by the LGF. On March 2014 the base rate is 7-8% on USA and 11-12% on MDL loans.
(3) Energy Efficiency Fund (EEF) project co-financing: The EEF will provide a grant up to 50% of the project costs with the aim of shortening the payback period under 4 years.

Topic: Technical measures

TopicOther:

Key Targets:
*The main ojective is to promote market transformation for Energy Efficiency in Industrial and the Building sector with emphasis on integrated and systemic approaches and high performance buildings, appliances, and equipment.
*Expected CP Outcome(s):
- Low Emission and Resilient Development: Strengthened national policies and capacities enable climate and disaster resiliency, low emission economic development and sustainable consumption.
- Public and private sector and individual consumers change production and consumption patterns towards increased energy and resources efficiency and use of renewable energy.

Results:
*Awareness about the ESCO mechanism increased;
*A number of 10 potential companies to provide ESCO services identified and trained;
*A financing mechanism ready to finance ESCO projects established;
*20 buildings screened and preselected for project implementation;
*10 investment grade audits performed and cases prepared for public procurement procedures;
*A template of Energy Performance Contract prepared, presented and endorsed with the major stakeholders.

Link: https://www.md.undp.org/content/moldova/en/home/projects/esco-moldova.html

Country_or_Region
Russia

Timeline:
May 2015 - April 2018

Partners:
UNDP-GEF Project "Buildings energy efficiency in the North-West of Russia"
Regional Administrations of Pskov and Vologda oblasts
Russian Energy Agency of the Ministry of Energy of Russian Federation
Pskov Communal Systems

Title: Implementation of the urban energy management system

About Case Study:
*Establishment of urban energy management system (Pskov and Vologda regions) to ensure rational energy use on municipal level, determine key energy performance indicators and prioritize required actions.
*This project was aimed to introduce efficient management mechanisms in order to establish the system of rational energy use on the municipal level, determine key energy performance indicatiors and prioritarise required actions.
*A set of policy and regulatory documents was prepared and implemented in order to establish an Urban Energy Management System (UEMS) in Pskov and Vologda Regions of Russia.

Topic: Legislative and regulatory framework

TopicOther:

Key Targets:
*Implementation of special administrative mechanism, which supports EE policy implementation nationally and municipally.
*The main goal of UEMS is the implementation of a special administrative mechanism, which supports the policy implementation in the field of energy efficiency, both at national level and at municipal level.

Results:
*A system was established (based on data from 160 buildings), and regional energy managers were appointed. Technical measures (with feasibility studies) were prepared for retrofits, and these were incentivized for municipal buildings. Seminars for EE specialists were organized, and national energy managers were identified for dissemination of experience among other regions. A set of policies and regulations was prepared and implemented.
*UEMS were established in Pskov and Vologda regions with the support of the regional administrations and regional energy managers were appointed in both regions. The list of needed technical measures (with feasibility studies) was prepared for energy efficiency capital repairs and the needed technical measures were incentivized for municipal buildings. Seminars for specialists, responsible for energy efficiency in municipal buildings were organized and national energy managers were appointed in order to disseminate the gathered experience among other regions. Data for 160 buildings was entered into the newly created Energy Management Information System (EMIS).

Link:

Country_or_Region
Russia

Timeline:
2014 - ongoing

Partners:
Private companies
“Ecodolye”, “Magnum
House”, “VELUX’ and
“Technonikole”
Developers from Moscow
State Building University
and Saint-Petersburg
State Architecture and
Building University

Title: Individual residential “A+ house” in Ekaterinburg

About Case Study:
*A pilot project in the frame of “Establishment of economical and organizational incentives to implement innovative energy efficient technologies, eco materials in building sector” Road map, and the “Own home” state Duma Programme on low-rise buildings development.
*The Project “A+ house” is a pilot project in the frame of the Road map “Establishment of the economical and organizational incentives to impement the innovative energy efficient technologies and eco materials in the building sector” and the Programme of the state Duma on the low-rise buildings development “Own home”.

Topic: Management of multi-family and public buildings

TopicOther:

Key Targets:
*The project aims to develop and implement energy efficient solutions, which are affordable for people living in different regions for low-rise residential buildings.
*One of the key targets of the project was to increase the affordability of the energy efficient technologies in each region and the development of applicable energy efficient solutions for the low-rise residential constructions.

Results:
*The first energy-efficient model of economy class SFB with optimal balance of energy consumption reduction, healthy microclimate and eco-friendly behaviour, was delivered. The Project won the “National competition on ecological development and energy efficiency – Green Awards”.
*So far, the project delivered the first energy efficient model of single-family residential house (economy class) which achieved an optimal balance between energy consumption reduction, healthy microclimate and eco-friendly behavior. The Project “A+ house” is one of the winners of “National competition on ecological development and energy efficiency – Green Awards” and the building constructed under this project was recognized as one of the best individual residential houses.

http://magnumhaus.ru/projects/aplus

Link: http://ekat.ecodolie.ru/proekt/

Country_or_Region
Russia

Timeline:
June 2011- February 2017

Partners:
Russian Energy Agency under the Ministry of Energy of Russian Federation, the Center of Energy Efficiency (under the Ministry of Education of Russian Federation), regional departments of education, regional educational institutions (schools, colleges, universities etc.), the International Center for Sustainable Energy Development (ISEDC) auspices of UNESCO.

Title: Establishment of continuous educational system in the field of EE

About Case Study:
*In the frames of UNDP-GEF Project “Buildings energy efficiency in the North-West of Russia”, a holistic educational system in the field of EE was developed.
*The concept of continuing education for the project was based on the individual ability to realize his/her potential at all ages, regardless of the place and time (in school, university, on workplace or at home) and using all available channels and methods of education. Under the framework of the UNDP-GEF Project "Buildings energy efficiency in the North-West of Russia", a holistic educational system in the field of energy efficiency was developed.

Topic: Awareness-raising, capacity-building and behaviour change

TopicOther:

Key Targets:
*To provide continuity in basic educational programmes to establish models for personal behaviour and develop rational energy resources consumption skills/patterns, regardless of age, level of education and location.
*The continuous education system on energy efficiency aimed at providing a continuity in the basic educational programmes in order to establish “efficient” models for personal behavior and develop the rational energy- end resources consumption skills, regardless of age, level of education and location.

Results:
*Implemented in 11 regions: 5,000 pupils (47 schools) and 3,700 college students were trained.
*New programmes (master's degree in energy management) established in 5 universities.
*Inter-regional center of online education established: international educational programmes organized for young specialists from 35 countries.

Link:

Country_or_Region
Russia

Timeline:
May 2015 - July 2016

Partners:
Administration of Novgorod region, Fund of assistance to reforming of housing and communal services, Russian Energy Agency under the Ministry of Energy of Russian Federation

Title: EE in new construction in municipality of Parfino, Novgorod region

About Case Study:
*Construction of energy-efficient MFB in Novgorod Region, as part of governmental programme on resettlement from outdated houses – free for low-income families. The project proved possibility (for municipalities) to implement EE solutions and use modern technologies within budget limitations.
*The submitted case study from Russian Federation presents construction of a new energy efficient residential building in the municipality of Parfino (Novgorod Region). Houses were constructed as a part of governmental program for resetlement from outdated houses in Russia. Municipally owned apartments are given for free to low-income families and inhabitants of buildings with emergency construction state. The project shows that energy efficient construction and modern technologies can be implemented also with a limited budget or for the execution of public municipal construction programmes.

Topic: Technical measures

TopicOther:

Key Targets:
*To implement a complex of EE measures considering regional climate, construction materials and equipment affordability; demonstrate benefits of energy-efficient MFB as compared to typical resettlement programme's buildings.
*This demo-project was aimed at demonstrating an example of energy efficient residential building as compared with the typical buildings within the governmental resettlement programmes. In order to increase buildings energy efficiency and reduce greenhouse gas emissions at the design stage, it was proposed to use the least costly and at the same time the most efficient measures and technologies. The complex of energy efficient measures was developed considering the regional climate specific, construction materials and equipment affordability.

Results:
*Most affordable, applicable and efficient technologies were implemented. Comparative energy saving potential is 57 per cent (due to special windows) and 86 per cent (due to insulation). Replicable in regions with similar climate conditions. Achieved energy conservation: electricity saving – 13,600 kWt/year; heat saving – 115.11 Gkal/year; estimated payback period – 27 years (including insulation); CO2 emissions reduction – 28.12 tons/year. Inhabitants received keys from new apartments in 2016.
*The system of continuous education in the field of energy efficiency was established and successfully implemented in 11 regions of Russian Federation. More than 5000 school pupils in 47 schools and 3700 students trained in colleges, participated in the initiative. New educational programmes for higher education institutions (Energy management, master's degree) were introduced and implemented in 5 participating universities. Among the other achievements, the inter-regional center of online education (RUEELP) was established and international educational programmes for young specialists from more than 35 countries were Organized.
*The future inhabitants of the built energy efficient house in Parfino received the keys of their new apartments in summer 2016. According to the experts, the comparative energy saving potential of the new building is up to 57% due to the special windows installation and up to 86% due to facades insulation. This project implemented some of the most affordable, applicable and efficient technologies, which could be widely used among the region/regions with similar climate conditions.

http://undp-eeb.ru/files/EE_construction_and_retrofit_ENG.pdf

Link: https://youtu.be/UjFGqrWRsNc

Country_or_Region
Serbia

Timeline: 2011 - 2017

Partners:

Title: Improvement of legislative and regulatory framework for buildings

About Case Study:
*Improvement of buildings EE regulation – to harmonize with relevant EU directives – was needed. Moreover, National Sustainable Development Strategy ordered reducing buildings' final energy consumption (amounted 60 per cent) by 9 per cent by 2018 compared to 2008.
*The project deals with the improvement of the country's legislative and regulatory framework for energy efficiency in buildings in order to harmonize and integrate in it the EU directives. The project supported the introduction of a National Data Management System for energy efficiency of buildings and improved local capacity to implement the new legislation.

Topic: Legislative and regulatory framework

TopicOther:

Key Targets:
*Tightening norms and standards in construction sector in line with EU buildings EE-related directives.
*In Serbia, the building sector consumes 60% of the final energy. Therefore the Sustainable Development Strategy of Serbia identified the goal to reduce the final energy consumption by 9% until 2018 as compared to that of 2008. In order to achieve this goal, it was necessary to tighten the norms and standards in the building construction sector. Therefore, the responsible Ministry of Construction (in 2011it was the Ministry of Environment Protection and Spatial Planning) started to improve the Serbian legislative and regulatory framework in line with EU directives regulating energy efficiency in the building sector.

Results:
*In 2012-2016, 2,000 residential buildings were constructed/renovated in line with the new standard introduced September 2012, reducing primary energy consumption by around 150,000 MWh. Over 30,000 tons of CO2 avoided each year. The project also supported National Data Management System for buildings EE and helped improve local capacity to implement new legislation.

Link:
http://stanovanje.gov.rs/energetska-efikasnost.php
https://www.unece.org/housing-and-land-management/projects/housingunda/serbia.html
http://www.crep.gov.rs/
http://eekalkulator.mgsi.gov.rs/
http://www.ingkomora.rs/programi/kursevi/?gr=80&sifra=6381%20%
20&prijava=1&post=0
http://zelenaenergija.pks.rs/ZelenaEnergija.aspx?id=14&p=6
http://www.15godinasaradnje.com/organizations_srb/giz_3.php

Country_or_Region
Serbia

Timeline: 2015 - 2018

Partners:
Ministry of Mining and Energy of the Republic of Serbia
German Federal Ministry for Economic Cooperation and Development (BMZ)

Title: Energy efficiency in public buildings

About Case Study:
*The general conditions for efficient energy use in public buildings in Serbia, particularly in schools and kindergartens, have improved. This includes guidelines and regulations that stipulate how public buildings can be rehabilitated to improve their energy performance. Craftsmen who have the skills required to carry out these measures at a high level are available.

Topic: Management of multi-family and public buildings

TopicOther:

Key Targets:
*The nationwide project on Energy Efficiency in Public Buildings focuses on the situation in the country's 6,500 or so schools and kindergartens. It operates in four areas:
- improving the legal framework,
- introducing instruments to estimate the scope for saving costs and energy,
- setting up an advisory and information platform and
- training janitors and craftsmen.

Results:
*Instructors at Serbian training institutions acquire the necessary expertise to offer upskilling courses for janitors and craftsmen, which lead to higher quality in energy saving measures in public buildings and to better maintenance of these facilities. Mayors, councilors and other decision-makers are also informed about possibilities for enhancing energy efficiency in public buildings.

Link: https://www.giz.de/en/worldwide/38300.html

Country_or_Region
Turkmenistan

Timeline:
November 2011 -July 2017

Partners:
State Corporation "Turkmengas", Ministry of Construction and Architecture of Turkmenistan, Turkmen Design Institute and UNDP Turkmenistan

Title: EE building codes as main instrument to achieve scaled-up benefits in new buildings

About Case Study:
*Lack of legal framework impeded energy-efficient housing and curtailing greenhouse gas emissions.
*The project describes the development and application of the updated regulatory framework in the field of energy efficient construction, considering the regional climatic conditions.

Topic: Legislative and regulatory framework

TopicOther:

Key Targets:
*To revise BEC for MFB; develop regulation on energy-efficient construction, accountable of regional climatic conditions; EE promotion.
*The major barrier to a better energy efficient housing at the beginning of the project was the lack of a legal framework to promote energy efficiency in buildings. The key objective of the project was to revise the most important building codes in terms of increasing energy efficiency levels. The building codes aim to provide the transformation of the residential building design, thereby saving energy and curtailing GHG emissions on a large scale via the implementation of building energy codes. The new codes collectively mandate an average reduction of 15-25% in heat energy consumption in residential buildings compared with the existing levels. The new thermal performance code incorporates whole-building energy performance requirements and new documentation requirements (energy passports).

Results:
*BEC on Roofs and Roofing, Residential Buildings, Building Climatology, and Building Thermal Engineering were revised, adopted and made mandatory in 2015-2017. These have BEP and energy passport requirements and imply 15-25 per cent heat consumption reduction in MFB.
*Four building codes were revised within this project including Roofs and Roofing, Residential Buildings, Building Climatology, and Building Thermal Engineering. The revised versions were adopted by the Government during 2015-2017 and are now mandatory in Turkmenistan. The new building codes provide for the minimal energy savings for heating to 27-28%.

Link:
http://www.tm.undp.org/content/turkmenistan/en/home/library/environment_energy/revised-construction-norms.html

Country_or_Region
Turkmenistan

Timeline: 2016 - 2017

Partners:
GEF, State Corporation "Turkmengas", Ministry of Construction and Architecture of Turkmenistan, Turkmen Design Institute and UNDP Turkmenistan

Title: New EE enhancements to typical designs for SFB

About Case Study:
*Funded by the GEF, this project seeked to develop new energy efficiency design and construction types of single family residential buildings, approved for typical conditions in the regions of Turkmenistan.

Topic: Technical measures

TopicOther:

Key Targets:
*To achieve transformation of SFB design and construction Turkmenistan, saving energy and curtailing greenhouse gas emissions through compliance with new mandatory code.
*Before 2016, there was no approved design tackling energy efficiency in the residential sector in Turkmenistan. The key target of the project was to achieve the transformation of single-family residential building design and construction in Turkmenistan, saving energy and curtailing greenhouse gas emissions on a large scale through the compliance with new code requirements.
*The eleven designs have been prepared as complete packages – including technical drawings and specifications, calculations, and cost assessment.
*New energy efficiency enhancements to typical designs for single-family residential buildings understood by the professionals responsible for using them, the project also delivered associated training on the design of energy-efficient single-family homes to eight building designers at the Turkmen State Building Design Institute. In addition, the project has conducted the baseline monitoring of two of the most common single-family houses, to establish a basis for determining real energy savings when the energy-efficient versions of the same homes are implemented.

Results:
*Changes to 11 commonly-used existing designs developed to increase thermal efficiency and ensure code compliance. With average cost increase 20 per cent, energy savings were: for heat and ventilation – 57 per cent; for cooling and ventilation – 50 per cent; for DHW – 27 per cent. Annual natural gas savings – 17.4 m3/m2 of residential area; CO2e emission reduction – 0.033 tons/year (per m2 of residential area).
*Based on expert estimation, from 2012 to the end of 2016, approximately 2,000 residential buildings have already been constructed or renovated in line with the new standard which started to be applied in September 2012. Rough calculations show that around 150,000 MWh less primary energy was consumed as a result and that over 30,000 t CO2 are avoided each year.
*The project developed some relatively simple additions to the most commonly-used existing designs, aimed at increasing their thermal efficiency to ensure new code compliance. The additional measures were introduced in various combinations to existing designs, yielding a total of 11 new design variants in total. Calculated energy consumption for heating and ventilation of the revised designs was reduced by an average of 57 percent, and cooling energy consumption by an average of 40 percent.

Link:
https://unece.org/DAM/energy/se/pdfs/geee/pub/ECE-ENERGY-121_energy-series-60.pdf

Country_or_Region
Turkmenistan

Timeline: 2011 - N/A

Partners:
UNDP, GEF,
Government of
Tumenistan

Title: Improving Energy Efficiency in the Residential Building Sector of Turkmenistan

About Case Study:
*The project integrated activities such as the implementation of building energy codes, state investment in renovation of existing building stock, improved design and management practice, training of aspiring and practicing professionals, and demonstration and replication of best practices

Topic: Technical measures

TopicOther:

Key Targets:
*The project aimed to achieve transformation of residential building design and construction in Turkmenistan, thereby saving energy and reducing GHG emmissions

Results:
*The publication presents numerous achievements of the project, promising a wide impact in construction and design practice in Turkemistan
*The report presents a summary of the impemented building codes, developed guidance materials and the effects on energy savings, gas savings, reduced GHG emissions

Link:
https://www.tm.undp.org/content/turkmenistan/en/home/library/environment_energy/energy-efficiency-results-brochure.html

Country_or_Region
Ukraine

Timeline:

Partners:
Aviator 17, EBRD, E5P,
Sweden

Title: Efficient use of energy in an old multifamily apartment building

About Case Study:
*Aviator 17, a Ukrainian Homeowners' Association (HOA) partially insulated façade walls as a first steps to insulate all facade walls to solve the main concern of the residents – low temperature in apartments during the heating period.
*Aviator 17, unites co-owners of 226 apartments in a multifamily building located in Kyiv, Ukraine. Its management team decided to improve energy performance of the building by insulating with mineral wool part of the north-oriented façade walls.
*In order to finance the project, Aviator 17 secured a loan of € 51,600 under the EBRD's IQ energy programme. Thanks to the loan, the HOA contracted VELIANT BUD, a supplier of materials and installer for thermal insulation of facade walls in the building.
*Apart from the partial wall insulation (1,500 m2), the results were also achieved thanks to partial facade walls insulation (2,000 m2), as part of the Kyiv city municipal program to support energy efficiency in residential buildings.

Topic: Management of multi-family and public buildings

TopicOther:

*Accurate calculations of individual apartment heat consumption
Key Targets: *Energy savings

Results:
*Thanks to this project, 246 households can now feel warm and comfortable in their homes. Monthly heating bills prove the effectiveness of the implemented measure, so the owners are motivated to further improve the level of energy efficiency of their building.
*An additional advantage of the project is that the homeowners received a modern and attractive appearance of the building that will preserve the building and extend its lifetime for many more years.
* A comparison of heat consumption of HOA building to the previous year, calculated based on degree day basis, the estimated savings of consumption are about 23%.
*Energy savings equal 116,280 kWh per year, CO2 savings equal 25,656 kg per year

Link:
https://ebrdgeff.com/projects/efficient-use-of-energy-in-an-old-multifamily-apartment-building/

Country_or_Region
Ukraine

Timeline:

Partners:
Kotelnikova 31, EBRD,
E5P, Sweden

Title: Ukrainian homeowners association improves heating system and decreases utility bills

About Case Study:
*The management team decided to improve energy performance of the building by installing heat metering system based on heat cost allocators, devices attached to individual radiators in buildings that measure the total heat output of the individual radiator.
*Kotelnikova 31, the HOA of the 80 buildings secured a loan of €16,087 under the EBRD's IQ Energy programme. Thanks to the loan, the HOA contracted PLASTICA, a provider of engineering systems and services to install heat cost allocators on 340 radiators in the building.

Topic: Management of multi-family and public buildings

TopicOther:

Key Targets:
*Accurate calculations of individual apartment heat consumption
*Energy savings
*Avoiding illegal individual-level interventions such as increasing radiators' capacity and installation of the floor heating systems connected to the central heating system

Results:
*80 apartments can manage their energy consumption accurately thanks to new technology
*Installation of a new heating system allowed Kotelnikova 31, a Ukrainian Homeowners' Association (HOA), improve the management of its heating system and optimise energy use through precise calculation of individual energy consumption.
*The project allowed the HOA to reduce energy consumption by almost 10 per cent. This translates into savings of UAH 78 200 (equivalent to EUR 2,652) each year.
*An additional benefit of the project is that the homeowners learned about the impacts of illegal individual-level interventions such as increasing radiators' capacity and installation of the floor heating systems connected to the central heating system and can make better decisions that ensure energy efficiency for all the residents.

Link:
https://ebrdgeff.com/projects/ukrainian-homeowners-association-improves-heating-system-and-decreases-utility-bills/

Country_or_Region
Ukraine

Timeline: 2021

Partners:
UNDP, Government of
Ukraine

Title: Socio-economic recovery and energy efficiency

About Case Study:
*The UNDP in Ukraine has signed a memorandum of understanding (MoU) with Ukraine's State Agency on Energy Efficiency and Energy Saving (SAEE) to cooperate in developing the green finance market, enhancing energy efficiency and energy security in the context of Energy Strategy of Ukraine until 2035, and supporting Ukraine's efforts to achieve more sustainable human and economic development.

Topic: Awareness-raising, capacity-building and behaviour change

TopicOther:

Key Targets:
*The parties will cooperate to promote more sustainable, inclusive, and green economic development.
*Facilitating the development of green and sustainable finance to make Ukraine's financial system more resilient to environmental, social and governance risks.
*Improvement of the decision making and planning process in the housing and utilities sector, to reduce the energy, resource and carbon intensity of the economy.
*Strengthen energy security in accordance with the Energy Strategy of Ukraine until 2035, improving EE and developing renewable energy, supporting the introduction of the Renewable Energy Guarantee of Origin, and partnering and cooperating on taking EE measures in public buildings in Ukraine.
*The cooperation will in turn enable the implementation of standards for sustainable financing, and in the governance of environmental and social risks.
*Increase the effectiveness and participation of the banking sector in the sustainable development of Ukraine via non-regulatory mechanisms, and promote the development of EE and private investment in EE in public buildings through appropriate catalytic financial incentives.
*Development of legislation to establish a comprehensive nationwide energy management and information system.

Results:
*Ukraine has a significant potential for energy efficiency in all sectors of the economy.
*At the initiative of the State Agency on Energy Efficiency, the legal framework for green bonds has already been established. At the same time, further development of green financing, including with the support of UNDP, will be a driver of change, lowering barriers and enabling the launch of numerous energy efficiency projects.
*The cooperation with UNDP will contribute to the quality implementation of energy efficiency policy and reduce the energy and carbon intensity of the economy as a whole.

Link:
https://www.ua.undp.org/content/ukraine/en/home/presscenter/pressreleases/2021/undp--energy-saving-agency-team-up-on-sustainable--inclusive--gr.html

Country_or_Region
Uzbekistan

Timeline:
2020 - ongoing

Partners: UNDP

Title: Energy efficiency of residential buildings in the pandemic conditions

About Case Study:
*Within the framework of the "Market Transformation for Sustainable Rural Housing in Uzbekistan" project in Samarkand, Surkhandarya, Ferghana, Khorezm and Bukhara regions there have been constructed 800 three-room energy-efficient houses with low energy consumption. In each of these houses, photovoltaic stations (PVS) with 300-Watt capacity for lighting needs, have been installed and are currently operational. In 10 of these houses solar water heaters with the capacity of 200 litres have been installed.
*Reducing energy consumption in these houses is also achieved through the use of high-quality special building materials, heat insulation of building, window sealing, automatic temperature control of premises, etc.

Topic: Management of multi-family and public buildings

TopicOther:

Key Targets:
*In the context of the COVID-19 pandemic and the projected recession in the global economy, the government of Uzbekistan is focused on the intensive development of the economy, which will require the introduction of new energy capacities, the efficient use of available resources both in industrial facilities and in the residential sector.

Results:
*As a result of the project, a reduction in household energy consumption and greenhouse gas emissions is expected.
*Reducing energy consumption in these houses is also achieved through the use of high-quality special building materials, heat insulation of building, window sealing, automatic temperature control of premises, etc.
*The widespread introduction of energy audits and the use of renewable energy sources are two of the significant reserves that have not yet been fully utilized, which in the future will serve to solve the problem of shortages of natural gas and oil, and, according to experts, can save consumer energy costs by half.

Link:
https://www.uz.undp.org/content/uzbekistan/en/home/stories/ensuring-the-energy-efficiency-of-residential-buildings-in-the-p.html

Country_or_Region
Uzbekistan

Timeline:
2018 - ongoing

Partners:

Title:
Presidential Decree PD-5577 - Energy-saving technologies and renewable energy sources

About Case Study:
* Starting from 1 January 2020, the decree obliges all housing construction facilities should be equipped with energy-efficient and energy-saving equipment at design and construction phases.

Topic: Legislative and regulatory framework

TopicOther:

Key Targets:

Results:

Link:
https://www.uz.undp.org/content/uzbekistan/en/home/presscenter/pressreleases/2021/12/green-future-for-uzbekistan.html

Country_or_Region
Uzbekistan

Timeline: 2015 - 2019

Partners:

Title:
Decree No. PP-2343: Program of Measures to Increase Energy Efficiency and Introduce Energy-Saving Technologies in the Sectors of Economy and Social Sphere during 2015–2019.

About Case Study:

*The three areas of investigation are broadly consistent with the priorities for improving EE in buildings stated in Presidential Decree No. PP-2343: Program of Measures to Increase Energy Efficiency and Introduce Energy-Saving Technologies in the Sectors of Economy and Social Sphere during 2015–2019.
*In particular, the presidential decree singled out actions in
(a) replacement of nonstandard and inefficient boilers for space-heating and hot watersupply in detached houses;
(b) channeling of energy cost savings in state budget-funded organizations toward funding EE investments in these entities; and
(c) improvement of rules and norms for EE requirements for new buildings.

Topic: Legislative and regulatory framework

TopicOther:

Key Targets:
*The findings and recommendations of the study, are intended to inform discussions between the Government and the World Bank on the issues and options to address the main constraints to implementing the priority actions identified in the Presidential Decree No. PP-2343.
*Detailed courses of action on specific EE interventions in buildings could then be developed based on the outcomes of these discussions.

Results:

Link:

Country_or_Region
Uzbekistan

Timeline: 2019

Partners:

Title: Presidential Decree PD-4422 - Energy-efficient and energy-saving equipment

About Case Study:
*The decree promotes the widespread introduction of energy-saving technologies and renewable energy sources.

Topic: Legislative and regulatory framework

TopicOther:

Key Targets:

Results:

Link:
https://www.uz.undp.org/content/uzbekistan/en/home/presscenter/pressreleases/2021/12/green-future-for-uzbekistan.html

Country_or_Region
Region Europe

Timeline:
June 2015 - November 2018

Partners:

Title: Train-to-NZEB: The Building Knowledge Hubs of Europe

About Case Study:
*The Train-to-NZEB project aimed to provide world-class training on energy efficiency and RES in buildings, based on new training programmes, business plans and up-to-date training equipment for a set of training and consultation centers around Europe.
*Its goal is to improve the knowledge and skills in the construction sector and to provide practical trainings, demonstrations and comprehensive consulting services for design and construction of Nearly Zero-Energy Buildings (nZEB) supported by RES, based on the Passive House concept.

Topic: Awareness-raising, capacity-building and behaviour change

TopicOther:

Key Targets:
*The main tasks of the project include design and equipment of 5 fully active Building Knowledge Hubs (BKH) - in Bulgaria, Romania, Turkey, Czech Republic and Ukraine; the adaptation of existing and the development of new curricula for training of building professionals; training and certification for a total of 90 trainers, 2,400 construction workers, 480 designers and 720 non-specialists (representatives of public authorities, business managers, NGOs, consumer groups, media, etc.).
*All of these, combined with the provision of consulting services based on the "One-stop shop" principle, is expected to increase the interest and capacity for design and construction of nZEBs supported by RES in the focus countries and to stimulate the market demand for such solutions for both new buildings and building renovations."

Results:
*The EU-funded Train-to-NZEB project has established world-class energy efficiency training facilities and innovative new teaching programmes at five central and east European countries. This will enable the next generation of construction professionals to develop the skills and expertise needed to meet growing demand for net zero energy buildings (NZEB).
*The training centres - or Building Knowledge Hubs - form part of a growing international network that combines theoretical lessons with practical hands-on exercises. The network also aims to increase interest in and awareness of NZEBs and stimulate market demand for optimal energy efficiency in new buildings and renovations. Train-to-NZEB network concept will now be further developed and expanded.

Link:

Country_or_Region
Region Europe

Timeline: ongoing

Partners:
European Union

Title: Build Up - The European Portal for Energy Efficiency in Buildings

About Case Study:
*A number of case studies from EU member states engaging in efforts to improve energy efficiency in buildings

Topic: Management of multi-family and public buildings

TopicOther:

Key Targets: *The aim is to to improve energy efficiency in buildings

Results:
*The resullts in the projects are energy savings, better living conditions, GHG emissoin reduction, etc.

Link: https://www.buildup.eu/en/practices/cases

Country_or_Region
Region Europe

Timeline:
ongoing, evaluation for
the period 2011-2016

Partners:
European Union

Title:
Comprehensive study of building energy renovation activities and the uptake of nearly zero-energy buildings in the EU

About Case Study:
*The objective of this study is to deliver a comprehensive analysis of the renovation activities and NZEB uptake in the EU from 2012 to 2016.

Topic: Technical measures

TopicOther:

Key Targets:
*The overall target for 2030 is to cut the energy system greenhouse gas (GHG) emissions by at least 40% as compared to the 1990 levels. Furthermore, the Renewable Energy Directive requires a
binding minimum share of 32% of renewable energy for final energy use as EUaverage. The Energy Efficiency Directive sets an indicative target of at least 32.5% improvement in energy efficiency by 2030 at EU level versus the projections. This is expected to lead the way towards a low-carbon economy and to meet the commitments under the Paris agreement. A key measure to accomplish this goal is the improvement of the energy performance of buildings.
*The objective of this study is to deliver a comprehensive analysis of the renovation activities and NZEB uptake in the EU from 2012 to 2016

Results:
*The average total annual energy renovation rate of residential buildings, namely the sum of all different levels of energy renovation depths from “below threshold” to “deep renovations”, for the period 2012-2016 based on floor area is estimated to be at around 12% for EU28 as a whole.
*The relative annual primary energy savings per residential renovation (comparing the performance of the building before and after renovation), taking the average of all energy renovations across the EU28 that took place between 2012 and 2016, is estimated to be at around 9% (8.8%).
*In terms of absolute savings, the average energy renovation within the EU is estimated to reduce a residential building’s specific primary energy consumption by 14 kWh/(m^2.y).
*The relative annual primary energy savings per non-residential renovation (comparing the performance of the building before and after renovation),
taking the average of all energy renovations across the EU28 that took place between 2012 and 2016, is estimated to be at around 17%
*In terms of absolute savings, the average energy renovation within the EU is estimated to reduce a non-residential building’s specific primary energy consumption by 47 kWh/(m^2.y).
*The relative annual GHG reduction per residential renovation (comparing the performance of the building before and after renovation), taking the average of all energy renovations across the EU28 that took place between 2012 and 2016, is estimated to be roughly 9%
*In absolute terms, year by year energy renovations in residential buildings on average reduced emissions by roughly 11 MtCO2eq per year during the period 2012-2016.

Link: https://ec.europa.eu/energy/sites/ener/files/documents/1.final_report.pdf

Country_or_Region
Region Europe

Timeline:
2018 - ongoing

Partners:
European Union

Title: Energy performance of buildings directive

About Case Study:
*Amendments on the Energy Performance of Buildings Directive 2010/31/EU and the Energy Efficiency Directive 2012/27/EU
*Directive (EU) 2018/844 of the European Parliament and of the Council of 30 May 2018 amending Directive 2010/31/EU on the energy performance of buildings and Directive 2012 /27/EU on energy efficiency
*The amending directive (2018/844/EC) covers a broad range of policies and support measures that will help national EU governments boost energy performance of buildings and improve the existing building stock.

Topic: Legislative and regulatory framework

TopicOther:

Key Targets:
*The proposed measures will increase the rate of renovation, particularly for the worst-performing buildings in each country. The revised directive will modernise the building stock, making it more resilient and accessible. It will also support better air quality, the digitalisation of energy systems for buildings and the roll-out of infrastructure for sustainable mobility. Crucially, the revised directive facilitates more targeted financing to investments in the building sector, complementing other EU instruments supporting vulnerable consumers and fighting energy poverty.

Results:
*The Directive amending the Energy Performance of Buildings Directive (2018/844/EU) introduced new elements and sent a strong political signal on the EU’s commitment to modernise the buildings sector in light of technological improvements and to increase building renovations.

Link:
https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2018.156.01.0075.01.ENG
https://energy.ec.europa.eu/topics/energy-efficiency/energy-efficient-buildings/energy-performance-buildings-directive_en