

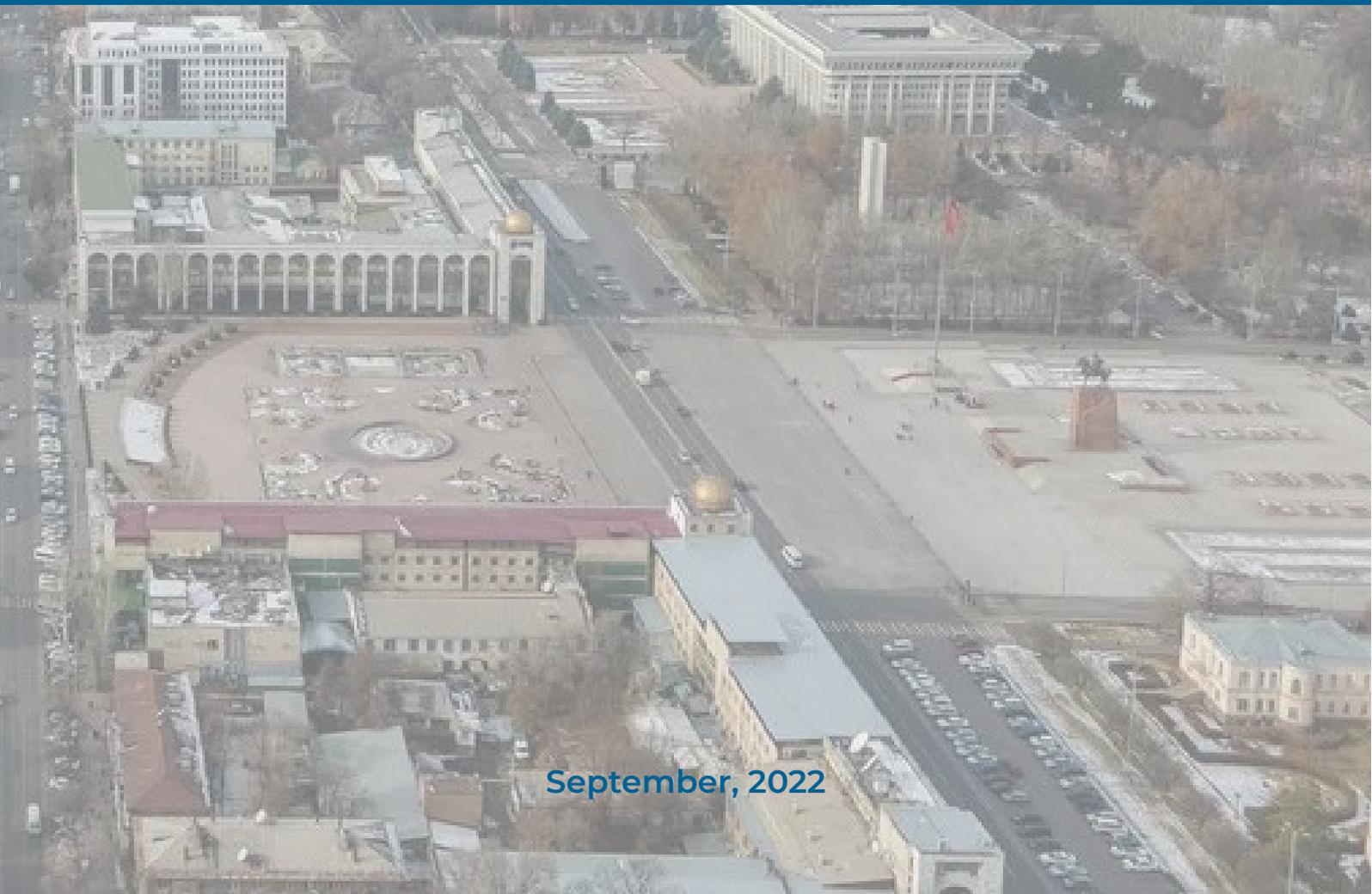


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Knowledge sharing and lessons learned of Kyrgyz policy dialogue experience on energy efficiency



September, 2022



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Disclaimer:

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ABBREVIATION

CTCN	Climate Technology Centre and Network
DKIB	Demir Kyrgyz International Bank
EBRD	European Bank for Reconstruction and Development
ECB	Energy certification of buildings
EE	Energy Efficiency
EED	Energy Efficiency Directive
EC	European Commission
EPBD	Energy Performance in Buildings Directive
EPCs	Energy Performance Certificates
ERE	Energy and Resource Efficiency
EU	European Union
ESCO	Energy Service Company
GDP	Growth Domestic Product
GEFF	Green Economy Financing Facility
GHG	Greenhouse Gas
Gosstroy	State Agency on Construction, Architecture, and Housing
KSUCTA	Kyrgyzstan and the Kyrgyz State University for Construction, Transportation, and Architecture
IEA	International Energy Agency
IFCA	Investment Facility for Central Asia
IRENA	International Renewable Energy Agency
KICB	Kyrgyz Investment and Credit Bank
KyrSEFF	Kyrgyz Sustainable Energy Financing Facility
Mwh	Megawatt hours
LEPB	Law on Energy Performance of Buildings
LES	Law on Energy Savings
PFI	Participating Financial Institution
RE	Resource Efficiency
RIA	Regulatory Impact Assessment
RES	Renewable Energy Sources
SEFF	Sustainable Energy Financing Facility
SME	Small and Medium Enterprises
TSUS	Building Testing and Research Institute Slovakia
UNDP	United Nations Development Programme
UNECE	United Nations Economic Commission for Europe
USAID	U.S, Agency for International Development
USD	U.S. Dollar

1. EXECUTIVE SUMMARY

Kyrgyzstan is considered as one of the most vulnerable countries to climate change in Eastern Europe and Central Asia. Kyrgyzstan's land area is 90% mountainous and more than 60% of the population lives in the rural areas. Poverty is another major issue in Kyrgyzstan where more than 30% of the population live below the poverty line. Climate change affects the most vulnerable communities in the country, making the situation even more challenging.

The landmark special report from the UN Intergovernmental Panel on Climate Change IPCC in 2018 and Six assessment report in 2022, Global Warming of 1.5°C, presented a stark picture of the dramatically different world we will inhabit if global average temperatures rise by 2°C compared to a 1.5°C scenario. The negative economic impact globally of additional heating and cooling demand is expected to increase fourfold by the end of the century. The consequences will be long lasting and, in some cases, irreversible. This emergency calls for urgent action now to radically transform current unsustainable models of consumption, particularly in the building sector due to its high demand of resources through the entire life-cycle of buildings and the increasing demand and complexity of the latter.

According to the UN IPCC report mentioned above, we will need to reduce dramatically carbon emissions associated with building construction, use and deconstruction by 80-90% by 2050 in order to put the world on a path to limit global warming below 1.5 °C. The expert community recognises that decarbonising buildings is one of the most cost-effective ways to mitigate the worst effects of the impending climate breakdown.

This applies equally to residential as well as for public and commercial non-residential buildings. For instance, the International Tourism Partnership's Hotel Global Decarbonisation Report concludes that "to keep pace, the global hotel industry will need to reduce its greenhouse gas (GHG) emissions per room per year by 66% from 2010 levels by 2030, and 90% by 2050." The IEA's Energy Technology Perspective 2017 also provides information on

the overall buildings sector.

European energy and resource efficiency regulation on energy performance of buildings is probably the most complex and comprehensive set of regulatory in buildings. Therefore, it has been used as a model for designing the current set of legislation on energy efficiency of buildings in Kyrgyzstan.

Realising the significant potential for energy efficiency investment in buildings, the huge demand for such by the market stakeholders, and by identifying the absence of any supportive legislation for the sector, EBRD has engaged in policy dialogue with the Kyrgyz authorities. This policy dialogue, consisted of a package of structured technical assistance adapted to the specific needs of government authorities and focussing on systematic change by:

- Developing primary legislation on energy efficiency of buildings,
- Enhancing and refining existing wider policy frameworks,
- Developing secondary legislation, technical guidelines and procedures,
- Building capacity of decision makers, public institutions and their implementation partners,
- Strengthening alignment between policy and regulation, financing instruments and market actors.

The central aim of the policy dialogue was to integrate energy efficiency into the design, construction, and operation of the buildings in Kyrgyzstan and introduce market instruments that could increase the demand for energy efficiency services and energy efficient buildings.

The Kyrgyz Republic Policy Dialogue interventions aimed at setting-up a principally new legislation on energy performance of buildings (LEPB), based on principles, actions and objectives provided by the EU Building Directive. The new legislation addresses all categories of buildings – residential, commercial and public construction of new buildings as well as sets conditions, levels of requirements, and process for the energy efficient renovation of existing buildings.

¹ <https://www.ipcc.ch/report/ar6/wg2/>



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The new legislation (LEPB) being in full compliance with the EU Building Directive (2010/31/EU) had introduced a new concept for the Kyrgyz authorities and became a breakthrough for new investments for the country. The Kyrgyz Republic became the first country on the post-Soviet area (except the three Baltic states) and a pioneer on setting legislation on energy efficiency of buildings, based on the best experience from EU.

The Report wraps up some lessons learned, which should be taken into account on both further works on strengthening implementation capacities and efficiencies of implementing the new legislation as well as identifying further opportunities for policy dialogue by international development agencies and MDBs.

Due to the innovative approach of the new legislation on energy performance of buildings, the Kyrgyz authorities confess that they have so far not been able to fully and effectively implement the legislation in practice. The reason of such failure caused by frequent political instabilities in the country resulted in

staff turn-over within the target ministries as of continues reformation in the Government structure.

Successful outcomes of policy dialogue undertaken by EBRD on energy performance of buildings lays the grounds for further collaboration on topics related to climate agenda, environmental protection and sustainable economic development. A successful case of policy dialogue has helped to establish trust and confidence among Kyrgyz authorities on what EBRD proposes is reasonable, implementable and generates benefits for Kyrgyz economy and local community. The most important message is these policy dialogue initiatives are sustainable and market based as they could continue. Further areas of policy engagement, which the Bank can explore in Kyrgyzstan are fine-tuning of legislation related to renewable energy, and to decarbonisation of the entire energy supply. In addition, there are relevant topics, such as the introduction of circular economy concepts, sustainable consumption and production, and the amendment of housing legislation.

2. INTRODUCTION

The energy sector accounts for about 4% of GDP and 16% of industrial production. Out of total energy generation hydropower accounts for about two-thirds of energy production (IEA, 2020). The energy intensity of the Kyrgyz economy is ten times higher than the world average: 1.232 tons of oil equivalent (toe) per 1,000 US dollars, with an average value for all countries of 0.123 toe. in 2017-2018. The energy intensity of GDP in 2018 is 25.5 tons of standard fuel (toe) per million Kyrgyz soms, or per capita at 2.4 toe for one thousand people. At the same time, when comparing the growth rates of energy intensity and electricity intensity in relation to 2010, one can pay attention to multidirectional trends – in 2018, the electricity intensity of GDP decreased, while the energy intensity of GDP increased.

This could be explained by much faster growth in both the absolute amount and the relative share of imported fossil fuels (natural gas, coal, and oil) against the locally produced electricity from hydropower. However, the total resource consumption of the fuel and energy complex is at half the level of 1990, and electricity consumption has increased by 10% (World Bank, 2017).

With large reserves of energy resources, Kyrgyzstan could largely meet its needs if the energy sector is properly and effectively managed. The fuel and energy complex of Kyrgyzstan consists of a combination of several sectors, including electricity generation, coal mining, gas production and distribution, production of petroleum products and renewable energy sources.

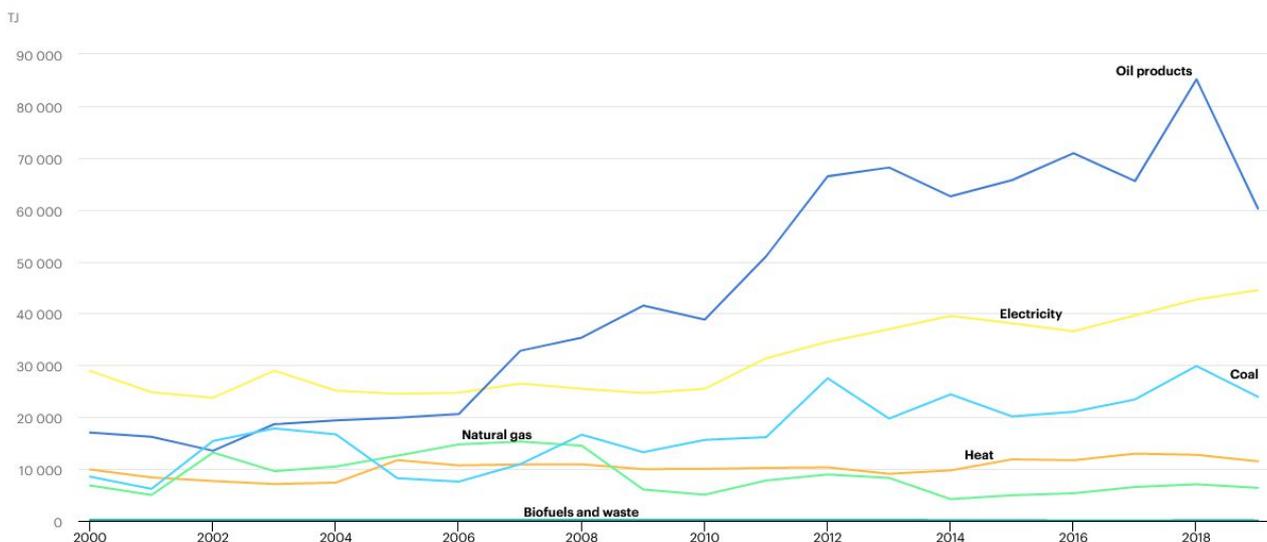


Figure 1. Total final consumption by source, Kyrgyzstan 2000-2019 (Source: IEA)

The energy sector accounts for the largest share (61.1%) of total greenhouse gas (GHG) emissions in the Kyrgyz Republic (USAID, 2017). The highest final energy consumer is the building sector, which particularly constitutes over 70% of total electricity consumption and contributes to 35% of the country's GHG emissions (World Bank, 2019). The reason for such high carbon intensity is that most of the country's existing building stock was constructed 35 to 50 years ago, during the Soviet era. Lack of maintenance and the

absence of timely retrofit have brought these buildings to a condition of obsolescence, resulting in significant high heat losses. Such losses multiply the energy demand per m² up to 3–5 times more than in countries with comparable climate conditions and building typologies in the EU (UNDP, 2008). In addition, the new building stock is growing at a rapid pace.

Domestic migration from rural to urban areas coupled with a population growth of 14% between 2009 and 2017 increased urban



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housing demand by 27% during the same time period (Green Economy Development Programme for 2019–2023, 2019). As a result, from 2006–2015 the electricity demand in the country rose by 52%. Public and residential buildings accounted for nearly 70% of this increase (International Energy Charter, 2018). Combined with low energy efficiency in the building stock, this increase made the country's electricity consumption grow faster than its capacity to generate electricity, over 90% of which is generated through hydropower. Since 35% of urban heating comes from electricity, demand triples during the winter months, from November to March (World Bank, 2015). This leads to a 20–25% gap in heating supply in public and residential buildings and to a low comfort level in many buildings, while at the same time creating a dependency on energy imports. Due to seasonal winter domestic shortage in electricity generation, heavily dependent on hydropower plants, 40% of the fuel for electricity generation is imported from neighbouring countries to meet the country's electricity needs (UNECE, 2018). The Updated Nationally Determined Contribution 2021 of Kyrgyz Republic estimates that the country's energy sector generated 66% of the CO₂ in Kyrgyzstan and that improvements could reduce the country's CO₂ contribution by some 40% by 2030. In particular, the potential for energy savings in public and residential buildings through energy efficiency measures and energy saving technologies would amount to nearly 40%, according to the World Bank (2019). The Green Economy Development Program hence identifies energy efficiency in buildings as one of its seven priority focuses.

These together with the important social impacts were behind the reasons for the EBRD to identify the building sector and particularly the gaps in building energy performance legislation and regulations as the main areas of intervention in policy dialogue with Kyrgyz authorities in energy and climate agenda in 2009-2015. In addition all of the policy dialogue activities were consulted and undertaken in coordination with the other

MDBs and international development agencies operating in Kyrgyzstan. The EBRD have watched closer on good coordination with these counterparts for synergies and complementarity of outcomes. These fall under general efforts of international development agenda for decarbonisation, and to transition to more sustainable economic development. An active collaboration has been set up for instance with CTCN, who led for development of a number of technical standards in buildings, Switch Asia with support for development of Green Building Guidelines;² adoption of sustainable consumption and production including for introduction of circular economy concepts,³ and the World Bank who were particularly active in the market segment of public buildings.⁴

Buildings are used by everyone for all human activities – for accommodation, work, public and commercial services, sports, and leisure. In addition, buildings and particularly residential real estate are the main areas of all investment activities in Kyrgyzstan. Over two-thirds on average of all investments are actually spent in the development of residential and commercial buildings over the past 10 years. These investments include larger amounts of remittances sent by Kyrgyz migrant workers from Russia and other countries from abroad as well as funding mobilized by corporate and institutional investors. That is why setting up effective decarbonisation legislation on the energy performance of buildings addressing both construction of more efficient new buildings as well as decent standard reconstruction or renovation of existing stock is critically important. Moreover, a significant and important consideration is that the construction industry relies largely on local sources of materials and the local labour force. This has a positive social impact on levels of employment, local manufacturing, and income generation for local communities.

Implementation of a conceptually new legislation inevitably is facing challenges and constrains at its inception implementation phase. This is related to limited understanding and awareness among market players on

² Green Building Guidelines: <http://switch-asia.eu/resource/green-building-guidelines-through-the-building-lifecycle-and-value-chain/>

³ Approach in the Building Sector with a Focus on Energy Efficiency: <https://www.switch-asia.eu/resource/enhancing-sustainable-consumption-and-production-tools-and-a-circular-economy-in-kyrgyzstan/>

⁴ <https://documents1.worldbank.org/curated/en/491271560400148398/pdf/Roadmap-for-the-Implementation-of-Energy-Efficiency-in-Public-Buildings-of-the-Kyrgyz-Republic.pdf>

practical implementation as well as to limited capacity among enforcement authorities and designated government agencies with supervision, permitting and monitoring functions. An additional market constrain is the limited number of accredited professionals who would be able to provide services anticipated by legislation on energy assessments, certifications or regular inspections. Recognising about these constrains the Bank anticipated a number of capacity building and awareness raising activities targeting both government agencies and authorities responsible for legislation implementation and enforcement as well as targeting market stakeholders for awareness raising and capacity building (trainings) activities. We believe that after passing an initial inception phase and with growing number of accredited professionals, these initial bottlenecks of implementation will be addressed. At least this is the experience from the EU countries, which had faced very similar challenges at the initial inception phase of EPBD implementation.

3. BACKGROUND AND THE RATIONAL FOR THE POLICY DIALOGUE ENGAGEMENT

By 2007, the Kyrgyz Government adopted a comprehensive National Development Strategy which identified the energy sector as a key priority for the economic development of the country. In the area of energy efficiency, the strategy highlighted that the Government would develop a national programme on energy efficiency and energy saving by the end of 2007. However, the programme was not developed as expected in 2007, and even the Law on Energy Saving underwent a major revision in 2008. Realizing the need for external assistance to facilitate the implementation of energy efficiency measures and projects, in 2009 the Kyrgyz Government requested the support of the EBRD. Responding to that call and by identifying building sector being a critical one for the national end-use energy efficiency, being at the same time the sector with the fastest growing energy demand, with the highest investment potential, and with the wider social implications, EBRD has decided to address gaps and insufficiencies in legislation and regulatory framework in the sector.

At that time and apart of the very generic and economy-wide Law on Energy Savings, and few general technical standards adopted since Soviet times and dedicated to functional requirements in buildings, there were not any other regulatory provisions on energy use or energy efficiency in buildings. The common market practice and regulatory requirements in buildings and construction have been the same as 40-50 years ago, with no attention at all to thermal protection, energy efficiency of building services and neither overall energy and carbon performance of buildings. Even renovations were limited to cosmetic redecoration (repainting the internal walls) or to restoring basic functionality of building services (e.g. cleaning and repairing the heating system, or mechanical ventilation), or repair of damaged components or systems (e.g. repairing leaking roofs). The technology market for energy efficient technologies was limited to very few expensive and imported units, which were offered at premium prices and perceived by the professional community more as luxury accessories rather than fully

functional and beneficial technology solutions.

The new legislation on the energy performance of buildings had been based on the concept and followed compliance with all the key considerations suggested by the EU Building Directive. As the process of legislation development took several years, the EU Building Directive was evolving itself reflecting higher ambitions on decarbonisation of buildings as well as reflecting on lessons learned on its implementation across the EU. The latest major amendment of the EU Building Directive was approved by 2018⁵ by introducing 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. In October 2020, the Commission presented its Renovation wave strategy, as part of the European Green Deal. It contains an action plan with concrete regulatory, financing and enabling measures to boost building renovation. Its objective is to double the annual energy renovation rate of buildings at least by 2030 and to foster deep renovation. A revision of the Energy Performance of Buildings Directive is one of its key initiatives. By December 2021, the Commission proposed a revision of the directive.⁶ It upgrades the existing regulatory framework to reflect higher ambitions and more pressing needs in climate and social action, while providing EU countries with the flexibility needed to take into account the differences in the building stock across Europe.

It also sets out how Europe can achieve a zero-emission and fully decarbonised building stock by 2050. 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

⁵ The Directive amending the Energy Performance of Buildings Directive (2018/844/EU)

⁶ Proposal for revision of the EU Building Directive, (COM(2021) 802 final)

vulnerable consumers and fighting energy poverty. These recent developments in evolution of the EU building legislation are not reflected yet in existing legislation on building energy performance (similar as they are not

transposed yet in any of the EU Member States). These however point at the vector of development and next level of ambitions for the legislation in Kyrgyzstan too.

3.1. Kyrgyz Republic Energy Efficiency Policy Dialogue

The Kyrgyz Republic policy dialogue, consisted of a package of technical assistance measures adapted to the specific needs of government authorities and focussing primarily on:

- Developing the primary legislation in building energy efficiency,
- Enhancing and refining existing policy documents,
- Developing secondary legislation, technical guidelines and procedures,
- Building capacity of decision makers, public institutions and their implementation partners,
- Strengthening alignment between policy and regulation, financing instruments and market actors.

The central aim of the policy dialogue was to integrate energy efficiency into the design, construction, and operation of the buildings in Kyrgyzstan and introduce market instruments that could increase the demand for energy efficiency services and energy efficient buildings.

To facilitate the transfer of knowledge and in order to gain further insights from other similar processes a number of project implementation partnerships were established with local and international organizations such as the Energy Center Bratislava, Slovakia, the Building Testing and Research Institute (TSUS)

Slovakia, Danish National Building Research Institute (SBI), Civic Foundation Unison, Public Foundation “Camp Alattoo” and the Kyrgyz State University for Construction, Transportation, and Architecture (KSUCTA).

The Kyrgyz Republic Policy Dialogue interventions aimed at setting-up principally new legislation on energy performance of buildings, based on principles, actions and objectives provided by the EU Building Directive. The new legislation addresses all categories of buildings – residential, commercial and public construction of new buildings as well as sets conditions, levels of requirements, and process for the energy efficient renovation of existing buildings. The new legislation encompasses development of primary and secondary legislation, upgrade and harmonisation of design and construction standards, development of specific methodologies, stakeholders' capacity building and awareness raising events to extend the involvement of public and private sectors in the energy sector policy development.

The policy dialogue's primary aim has been to address challenges such as the gaps in the policy and legal framework, lack of technical capacity of public sector and industry stakeholders, limited coordination among other government departments and parliament members, resistance from interest groups.

Gaps in the policy and legal framework	Development of primary and secondary legislation
	Development of recommendations for harmonization
Technical capacity of public sector	Organization of trainings and stakeholder workshops
	Ongoing support to Gosstroy, Kyrgyz Parliament and Ministry of Energy

Limited coordination between government departments

Assisted the establishment of coordination council on Energy efficiency

Supported organization of inter-ministerial and public consultations

Limited involvement of private sector in energy efficiency projects

Development of certification system for energy certification of buildings and regular inspection of boilers, heating systems

Training of independent experts on ECB and Regular inspections

Since 2009, following a decision to assist Kyrgyzstan with development of a solid policy and regulatory framework on the energy performance of buildings the EBRD had been providing Technical Assistance to the relevant Kyrgyz government institutions on both development of such a policy and regulatory framework as well as a practical demonstration of the applicability of advanced technology solutions through the Kyrgyz Sustainable Energy Financing Facilities. The European Building Directive⁷ has been used from the very beginning as a model for the new policy and regulatory framework in Kyrgyzstan. All the key elements of the original Building Directive have been fully incorporated into the new Kyrgyz legislation. As development of conceptually new legislation is a complex task and requires development of primary, secondary and tertiary legislation, as well as significant capacity building, awareness raising, and setting up new institutional approaches for relevant institutional counterparties, as well as work with all market players along the value chain, it took longer period until the legislation was developed, approved and put in use. During that period the original Building Directive was recast first in 2010, and then amended in 2018.⁸ Using the time delays of adoption and approval of the new Kyrgyz legislation, relevant amendments were incorporated to accommodate for new provisions suggested by the EPBD recast and for the revised version in 2018. That way existing Kyrgyz legislation is largely compliant with the provisions of the current EU Building Directive, making Kyrgyzstan as the only country in Central Asia with such an advanced and forward-thinking legislative and regulatory framework.

These new institutional concepts encom-

pass introduction of market driven services provided by accredited professionals, public and legal accountability on the quality of provided outcomes (energy performance certificates, inspection protocols) as well as a principally new split of responsibilities between government authorities in charge of permitting procedures, the client with their legal obligation to meet minimum energy efficiency requirements expected by the legislation and the independent professionals providing an assessment on the levels of energy performance, and guidance advise on cost-optimal solutions. This has been a fundamentally different concept from the Soviet authority-based approach adopted in neighbouring countries where authorities are entitled with full authority to decide what and how to be built.

The new legislation (LEPB) being in full compliance with the EU Building Directive (2010/31/EU) had introduced a new concept for the Kyrgyz authorities and became a breakthrough for new investments for the country. The Kyrgyz Republic became the first country on the post-Soviet area (except the three Baltic states) and a pioneer on setting legislation on energy efficiency of buildings based on the best experience from EU.

Important for the introduction of the new legislation was parallel implementation of the original Kyrgyz Sustainable Energy Financing Facility (KyrSEFF), launched in 2013, and its extension KyrSEFF II in 2016. Projects financed by KyrSEFF, with energy efficiency levels aligned with the concept and criteria anticipated by the new Kyrgyz legislation on energy performance of buildings have demonstrated that levels of energy efficiency requirements suggested were cost-effective, were accepted by market players and by end-

⁷ European Directive on Energy Performance of Buildings, 2002

⁸ EPBD recast in 2010 (Directive 2010/31/EU) and a revised version was published in 2018 (Directive 2018/844/EU).

use customers and hence will not hamper economic growth or make construction of buildings radically expensive. This has convinced both policymakers as well as the broader professional community to support the new legislation and the new institutional concepts behind it.

One of the major constraints while advocating for more ambitious climate legislation and while referring to successful international experience is the notion of local market players and policymakers that this experience is not applicable to market conditions of Kyrgyzstan, that it should apply to rich and more developed countries and it would be prohibitively costly to implement in. In essence, that market conditions of Kyrgyzstan are so unique that no international experience can successfully work there. The main synergies of implementing KyrSEFF alongside Policy Dialogue and setting up the new legislation were that KyrSEFF has demonstrated that provisions of the new legislation can be successfully and cost-efficiently implemented. The market stakeholders can have further benefits from adopting a higher level of energy efficiency with a wider range of additional benefits (e.g. better thermal comfort, lower rates of operational disruptions, happier and healthier occupancy, better air quality, etc). This positive experience and feedback from KyrSEFF beneficiaries have been picked up by further market stakeholders, including end-use customers as well as technology providers and provided multiple effects on the adoption of advanced solutions compliant with the new legislation.

Aware of the complexities on intruding such a novelty concept of legislation the Bank adopted a staged approach:

- **Phase 1 (2009-2011):** development of primary legislation – drafting a Law on Energy Performance of Buildings (the “Law” or the “LEPB”), and a basic set of Government Decrees as a secondary legislation. The primary legislation (the Law) has defined legal responsibilities of market stakeholders at construction of new and renovation of existing buildings as well as the new functions and responsibilities of government agencies and local authorities involved in the process of building permitting and commissioning.

The secondary legislation defines supportive methodologies implementation procedures within the remit of responsibilities of different counterparts as per the primary legislation. In addition, suggested Government decrees has defined a number of tools and instruments anticipated to facilitate implementation of the legislations – national registries of Energy Performance Certificates, national Registry of Regular Inspection Protocol, national Registry of authorised and accredited energy assessors. The secondary legislation also defines the governance of these methodologies (e.g. energy performance assessment of buildings, building certification and regular inspection of heating and hot water preparation) and the governance of national registries and databases.

- **Phase 2 (2012-2018):** this phase included fine-tuning of the new legislation during approval process, reflecting amendments in the original EU Building Directive by the recast version (2010) and complementing the set of Government Decrees with additional ones as necessary to fine-tune implementation procedures. The LEPB was approved by the Kyrgyz Parliament as Law No. 137, on the 6th Feb 2011. The basic set of Government Decrees was approved by the Government during 2012-13 (e.g. Government Decree on energy performance certifications No. 531 from 2nd August 2012). During this phase both primary legislation (the Law on Energy Performance of buildings) and the set of secondary legislation (Government Decrees) were approved by designated authorities. In addition during that phase a number of existing technical standards (tertiary legislation) were amended in order to align with the new primary and secondary legislation. This included 2 basic technical standards related to design, operation and functionality related to thermal protection and engineering systems in buildings. That way legal obligations for market stakeholders (primary legislation given by the

LEPB), methodologies, processes and instruments (the Government Decrees as described above) were aligned with technical conditions used by the broader professional community for design and operation of buildings;

- **Phase 3 (2019-2022):** was dedicated to harmonisation of the new primary and secondary legislation with other laws and government regulations – including the Law on Energy Savings and with development of implementation capacities for designated government authorities to implement provisions of the legislation. During the process of harmonisation additional amendments and fine-tunings were conducted on the LEPB, incorporating also new provisions suggested by the revised EU Building Directive from 2018. Thanks to harmonisation with other laws and regulations, a clear distinction was defined between areas of focus and responsibilities under the LEPB and the LES and cross-references between the two laws were introduced. In addition, some fine-tuning has improved the qualities and functionalities of tools and instruments necessary for practical implementation of the legislation. Attention was paid also for development of accreditation process and accreditation capacities allowing testing and authorisation of the independent market assessors and inspectors for building certification and regular inspection of building services systems.

Figure 1 below briefly describes the timeline of the legislation support accomplished within the EBRD and EU supported technical assistance.

It might be seen as a lengthy process of development and adoption of the new legislation on energy performance of buildings in Kyrgyzstan between 2009 and the beginning of the third final implementation phase in 2019. It is worth noting that the EU countries have passed a similar lengthy way while having an abundance of resources, professional, institutional and scientific capacities, and experience on the topic of energy performance

of buildings. The original Building Directive 2002/91/EC was adopted and published by the European Commission in 2002 after about two and half years of development and after a number of Europe-wide pilot projects were implemented in order to test the suggested approach and instruments. The EU Member States were given 6 full years for transposition of the Building Directive into their national legislation. By 2010 and after realising that the speed of transposition lags significantly behind schedule, the European Commission conducted a study to assess success of transposition, the gaps and hurdles as well as lessons learned for transposition of the Directive by Member States. By 2011 the study concluded that only 4 out of the 27 EU Member States has managed to fully transpose the Directive. These 4 EU Member States were Germany, Denmark, Netherlands and Slovakia. Taking into account that Slovakia was the only EBRD country among the most successful applicant of the Building Directive, it was decided by the Bank to use extensively Slovak experience for the policy dialogue in Kyrgyzstan. Moreover, that the market conditions were more similar rather than the ones in Germany, Netherlands or Denmark. Another advantage of the Slovak model of legislation was its higher level of ambition toward better energy efficiency and decarbonisation and the use of simple and practical tools for energy assessment and certification of buildings. This has allowed to develop Kyrgyz legislation and associated supportive tools and instruments with relatively modest resources compared to the magnitude of the task and compared to the resources spent for similar legislation in any of the EU Countries.

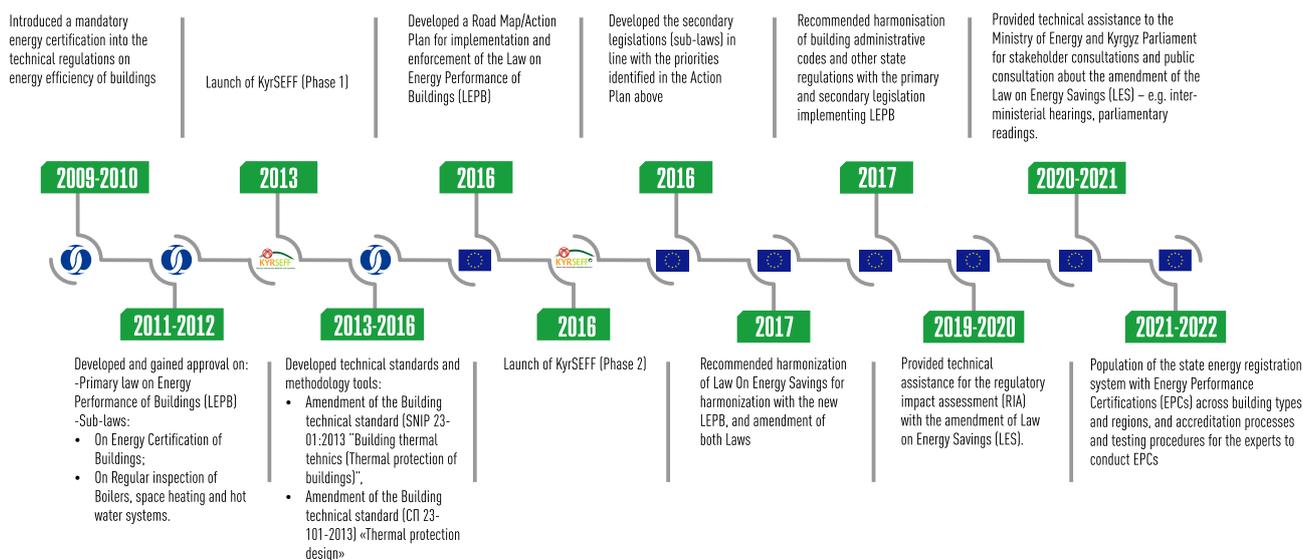


Figure 2. Policy Dialogue Timeline

3.2. Primary and secondary legislations in the energy sector

The Kyrgyz Republic's energy efficiency legislation is based on two primary laws – the Law on Energy Saving (1998) and the Law on Energy Performance of Buildings (2011) – and on related secondary legislation, such as government decrees, technical norms and regulations. However, it should be noted that as a cross-cutting issue, energy efficiency is affected by several other laws, many of which are outdated or lack effective implementation.

The corner-key stone laws in this context are:

- The Law on Energy (1996)
- The Law on Electricity (1996)
- Law on Energy Savings (LES 1998)
- The Law on Renewable Energy (2008)

Thanks to the Policy Dialogue interventions, the Government of Kyrgyzstan started recognizing the importance of energy efficient improvements and has initiated a number of important steps to help improve the energy efficiency framework.

EBRD, with support from EU, has assisted the state authorities with addressing various challenges in enforcing the LEPB and amending the relevant overarching Law on Energy Savings (LES). In the process, the EBRD provided assistance to the following government entities:

- Parliamentary committees on Energy and Fuels, and on Architecture and Construction,

- State Committee on Energy, Industry and Mining (incorporated into the Ministry of Energy in 2021,)
- State Agency on Architecture and Construction (Gosstroy).

The technical assistance to Gosstroy included drafting and adopting a new law on Energy Performance of Buildings (LEPB) in 2011, which benchmarked the EU's energy performance of buildings directive (EPBD). In recent years, some progress has been made through the EBRD-EU-Kyrgyz Government partnership on energy efficiency agenda and related sector reforms.

The Law on the Energy Performance of Buildings (LEPB) governs the energy performance of buildings in the Kyrgyz Republic during design and construction (for new buildings) as well as for major renovations (existing buildings). At the time of its adoption in 2011, the law was a unique normative act based on the successful practice of promoting energy efficiency in the European Union and adapted to the conditions and regulatory framework of the Kyrgyz Republic. It was one of the first laws in Central Asia in which market-based energy efficiency management mechanisms replaced specialized requirements from the post-Soviet era at the level of technical regulations and standards. It introduced obligatory minimum energy-efficiency classifications applicable to the design and

construction of new buildings and major renovations in existing buildings. Each building's energy efficiency class is identified through its energy certificate, which includes information on the current energy consumption baseline and energy efficiency potential. This will allow the building owner to determine which measures to introduce in the building and to plan future savings. The law is complemented by by-laws and technical documents, and further efforts were taken underway to improve the legislation and its enforcement developed within the EBRD Policy Dialogue technical assistance, including:

- Regulation on the Modalities for the Energy Certification of Buildings, Government Decree № 531, August 2, 2012
- Regulation on the Procedure for Periodic Monitoring of Energy Efficiency of Boilers, Heating and Hot Water Supply Systems Government Decree № 531, August 2, 2012
- Regulation on the State Register of Energy Certificates of Buildings, Reports on Periodic Monitoring of Energy Efficiency of Boilers, Heating and Hot Water Supply Systems of Buildings and Certified Specialists in Energy Efficiency of Buildings and on Periodic Monitoring of Energy Efficiency of Boilers, Heating Systems and Hot Water Supply of Buildings Government Decree № 131, January 17, 2020
- Regulation on rules and procedures for qualification certification of specialists in energy certification of buildings and periodic monitoring of energy efficiency of boilers, heating systems and hot water supply of buildings Government Decree № 13, January 17, 2020
- Amendments to the Law on Energy Efficiency of Buildings, June 20, 2019, #74
- Amendments to the Method for Calculating the Cost of works on Energy Certification of Buildings Gosstroy Decree #40, April 17, 2020
- Action Plan/Roadmap for creating conditions for practical implementation of legislation in the sphere of energy efficiency of buildings of the Kyrgyz

- Republic. Gosstroy Order 26.10.2016
- SNiP 23-01:2013 "Building Heat Engineering (Thermal Protection of Buildings)" Gosstroy order 26.05.2013
- SP 23-101-2013 "Design of Thermal Protection of Buildings" Gosstroy order, 26.05.2013
- Methodology for Calculating the Energy Efficiency of Buildings and Determining Energy Efficiency Class for Energy Certification of Buildings, Gosstroy order 26.05.2013
- Methodical instructions for conducting periodic monitoring of energy efficiency of boilers, heating systems of buildings and hot water supply of buildings. Gosstroy order, 26.05.2013
- Guide to the settlement application for energy certification of buildings (based on Microsoft Excel), Gosstroy order, 26.05.2013

Despite the recent progress, the implementation of energy performance improvements is still constrained by multiple barriers. While the potential for energy performance improvements in economic sectors are significant, a number of technical, economic, institutional, legal, regulatory and financial impediments are preventing comprehensive energy efficiency investments from being undertaken. Thus, there was a great demand to harmonize the LEPB with other primary legislations of energy sector.

The policy dialogue with the Ministry of Energy, lasted in 2017-2019, contributed in updating the Law on Energy Savings (LES 1998) in line with LEPB and EU best practices. The amended LES included:

- All economic sectors and requires harmonization with LEPB and new updates;
- Energy saving target for the large energy intensive industries and introduction of Energy Management system;
- Establishment of innovative financing instruments, like as ESCO, Energy Revolving funds, and private sector financial institution-led schemes.

Harmonising the two laws (LEPB, LES) enquired EBRD's technical support for conducting a Regulatory Impact Assessment (RIA) of the amendment suggested to the Law

on Energy Savings (LES) as well stakeholder consultations and public consultation about the amendments of the LES including inter-ministerial hearings, parliamentary readings.

According to the legislative system, the amendments and draft laws have to be officially published for public review and feedback. Further, the revised draft law was supposed to be submitted to the Parliament, particularly to the relevant committee of the Parliament. The draft law is considered accepted if it passes three readings of the Parliament and approved [voted] by majority of parliamentarians.

The information materials produced within the policy dialogue frameworks supported the effective communication and increased

understanding on social and economic benefits of energy saving among the population and government stakeholders as well as media engagement for awareness raising on proposed amendments to LES and LEPB and lobbying activities at both the Government and Parliament levels. In particular cases, these activities had been postponed due to the Covid-19 restrictions and sometimes delayed. Awareness raising activities continued by publishing news and posts in the social networks, TV and radio talks of EU and national experts on the importance of energy efficiency and benefits new amendments to LES and LEPB, and articles in various media portals having country-wide coverages.

3.3. Activities accomplished within the Policy Dialogue

Since 2009, the EBRD has supported the state authorities with introducing legislations to reduce energy demand in the building sector and to improve energy efficiency across sectors. In this process, the EBRD assisted the state authorities with learning best practices

and knowledge through benchmarking the relevant EU Directives (e.g. Energy Performance of Buildings Directive or EPBD, and Energy Efficiency Directive or EED) and comparative analysis with the application of the EU member states.

Table 1. Policy dialogue on energy efficiency of buildings activities in Kyrgyzstan: Phases 1,2 and 3: 2009-2022

Type of activity	Activity	Status
Phase 1: 2009-2012 - Support provided by the EBRD Slovak Trust Fund, 2009-2011		
Development of primary legislation	<p>Preparation of primary legislation: Law on Energy Performance of Buildings (LEPB), introducing legal responsibilities of building owners and instruments to promote EE in buildings.</p> <p>Main provisions under the LEPB encompass legal responsibilities and requirements in relation to:</p> <ul style="list-style-type: none"> • Minimum energy performance standards for new construction and major retrofits; and • Energy performance certification (EPC) mandatory for all new construction or renovation of existing building subject of obtaining construction permit as well as for purchases or leases of building premises; • Regular inspection of heating and air-conditioning installation of buildings above 	<p>Approved by the Parliament as Law No. 137, in force since 6th Feb 2012</p>



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Type of activity	Activity	Status
	<p>certain capacity installed;</p> <ul style="list-style-type: none"> • Qualification and accreditation of independent experts for EPC and regular inspection of boilers and heating measures • Establishment of the State Register on Energy Efficiency to showcase EPCs across building types and regions 	
<p>Development of basic secondary legislation</p>	<p>Development of two Government Decrees:</p> <ul style="list-style-type: none"> • On energy performance certifications • On regular inspections of boilers and heating systems <p>These introduce minimum energy performance requirements for all types of buildings and energy assessment methodology in compliance with ISO EN 13790/2008. Energy certification and the regular inspections are to be conducted by independent accredited professionals.</p>	<p>Approved by the Government as Government Decree No. 531 from 2nd August 2012</p>
<p>Development of supportive secondary legislation</p>	<p>Development of three Government Decrees:</p> <ul style="list-style-type: none"> • On quality monitoring of Energy Certification and Regular Inspection of boilers and heating systems in buildings • On the State register of energy certificates, inspection protocols and on the State Register of accredited professionals • On the rules and procedures of accreditation of professionals for energy certification and regular inspection in buildings 	<p>Approval drafts accepted by the State Agency on Construction. Submitted for Government approval in 1Q 2013</p>
<p>Harmonisation with the technical standards (tertiary legislation)</p>	<p>Amendment of the two technical standards for compliance with ISO EN standards implementing the EU Directive on Energy Performance of Buildings transposed by the new primary & secondary legislation in Kyrgyzstan:</p> <ul style="list-style-type: none"> • SNIP 23-01/2009 Building thermal technique. Thermal protection of buildings; • Set of Rules (Svod Pravil) for the SNIP 23-01:2009 mainly with focusing on compliance with changes proposed in SNIP 23-01:2009 and requirements of Law No. 137 and Gov. Decree No. 531 on Energy Certification of Buildings and considering also requirement on hygienic criteria. 	<p>Accepted by the State Agency on Construction. Approved by the State Standardisation Committee in 2013</p>

Type of activity	Activity	Status
Development of supportive instruments and tools	<p>Development of the tools and instruments facilitating implementation and monitoring of the new legislation:</p> <ul style="list-style-type: none"> • Web-based State Register of Energy Performance Certificates in Buildings; • Web-based State register of Accredited Professionals for energy certification and regular inspection of heating systems in buildings; • Guidelines for experts on energy certification; • Guidelines for regular inspection of heating systems; • Training modules for Accreditation Committee on applicant for energy certification and regular inspections; • Test generator; • Energy performance assessment and energy certification of buildings software; • Set of FAQs on technical and legislative aspects related to the new legislation. 	Completed and handed over in 3Q 2012 to the State Agency on Construction and to the independent Accreditation Committee
Capacity building	<p>Capacity building trainings on:</p> <ul style="list-style-type: none"> • Training of Accreditation Committee on procedures for professional accreditation and on the use of certification and inspection tools; • Training of the State Registers administrator • Trainings for future trainers of future accredited experts; • Two round tables for professional associations on the impact of the new legislation and its procedures; 	Conducted during 3-4Q 2012
<p>Phase 2: 2013-2018 Funded by the EU IFCA TC FC777/778 as part of the KyrSEFF Extension (KyrSEFF II): Policy Dialogue on Energy Efficiency in Kyrgyzstan</p>		
Developing a Road Map/Action Plan for transposition of the Law on Energy Performance of Buildings (LEPB) and the legislation on energy efficiency in buildings	<p>Mapping all the gaps and constrains preventing from full implementation of the LEPB, reflecting amendments of the EU Building Directive suggested by the Recast (2010) and the Revised Directive (2018).</p>	Road Map commissioned and accepted by the State Agency for Construction and Architecture (the policy maker for the building sector)

Type of activity	Activity	Status
<p>Development additional secondary legislation for the implementation of the LEPB</p>	<p>Development of supportive secondary legislation or amending existing one.</p> <ul style="list-style-type: none"> • Development of provisions and/or dedicated regulation on monitoring quality of work of accredited energy assessors conducting Energy certification of buildings and accredited inspectors conducting Regular inspection of boilers, heating and hot water systems in buildings; • Development of suggestions and/or regulation on regulating the prices of services related to energy certification of buildings and regular inspection of heating systems and hot water systems. 	<p>Both regulations accepted by Gosstroy and submitted for interministerial hearings</p>
<p>Develop recommendations on harmonisation of administrative codes</p>	<p>Develop recommendations on harmonisation of administrative codes and other state regulations with the primary and secondary legislation implementing Energy Performance of Buildings in compliance with actions suggested by the Road Map for transposition of the Law on Energy Performance of Buildings</p>	<p>Suggestions developed and accepted by the Gosstroy on amendments in the Administrative Code on defining responsibility for violation of regulations on energy performance of buildings, in accordance with the Law "On Energy Performance of Buildings»</p>
<p>Amendment of the Law on Energy Savings as assistance provided to the Ministry of Energy (former State Committee for Industry, Energy and Subsoil Management)</p>	<p>EBRD assisted to draft an amendment to the outdated Law on Energy Savings (LES 1998) in line with EU Energy Efficiency Directive and in coordination with thwe LEPB. Suggested amendments included:</p> <ul style="list-style-type: none"> • all economic sectors, and it requires harmonization with LEPB and new updates, inc. • Energy saving target for the large energy intensive industries and introduction of Energy management system; • establishment of innovative financing instruments, like as ESCO, Energy Revolving funds, and private sector financial institution-led schemes • Clear distinction of focus, applicability and cross-references with the LEPB 	<p>Harmonisation of the LES with the LEPB and additional amendments in the LES with regards to the instruments to finance energy savings in different sectors. The amendments have been accepted by the State Energy Committee</p>

Type of activity	Activity	Status
Phase 3: 2019-2022 Funded by the EU IFCA TC FC777/778 as part of the KyrSEFF Extension (KyrSEFF II): Policy Dialogue on Energy Efficiency in Kyrgyzstan		
2019 – 2020	Provided technical assistance for the regulatory impact assessment (RIA) with the amendment of Law on Energy Savings (LES).	RIA publicly available. Amended LES awaiting parliament approval.
2020 – 2021	Provided technical assistance to the Ministry of Energy for stakeholder consultations and public consultation about the amendment of the Law on Energy Savings (LES) – e.g. inter-ministerial hearings, parliamentary readings.	Communication materials, public hearings, enhanced capacity of the Ministry with LES awaiting parliament approval.
2021 – 2022	Population of the state energy registration system with Energy Performance Certifications (EPCs) across building types and regions, and accreditation processes and testing procedures for the experts to conduct EPCs	Transparent, accessible online system to create a market to assess EPCs.

4. IMPACT

The European Partnership for Democracy (2021) states that the main outcome of a policy dialogue process is a policy change by creating an inclusive and participatory collaboration of various actors such as public officials, business, and civil societies. In Kyrgyzstan, despite various objectives, ways of working and values of the energy sector stakeholders, they were in dire need of an environment which enables all for cost-efficient benefits and mutual trust. Policy dialogue in Kyrgyzstan, pursued since 2009, had played a very important role in the multi-stakeholder engagement by opening spaces for inclusive and participatory dialogue to overcome existing barriers in the energy sector. For instance, it leads to the development of the energy efficient and renewable energy technologies market, attraction of the donor community interest on financing green technologies and increasing of the public awareness on importance of thermal insulation of homes and facilities.

The policy dialogue in the Kyrgyz Republic has contributed to the adoption of legislation on energy efficiency of buildings based on the best experience from EU, making it the first country on the post-Soviet area (except the three Baltic states) to do so. The new legisla-

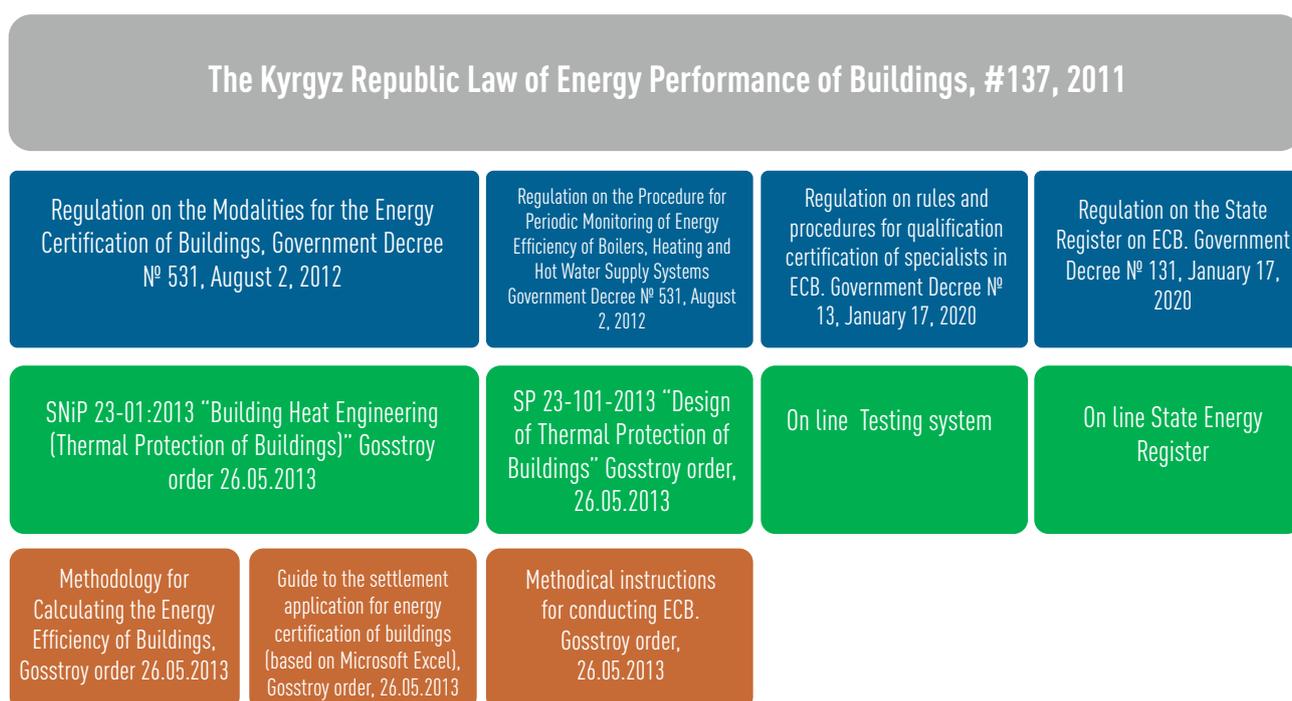
tion, developed with support by the EBRD, is closely aligned with the EU Building Directive (2010/31/EU) and introduced new concepts and instruments that support the implementation of primary legislation.

The EBRD support has also contributed to creating an enabling framework for market-based approaches on energy efficiency. This has been achieved by the inclusion of energy performance, contracting and the certification of energy auditors in the legislation and developing specific rules and guidance on relevant procedures.

The policies developed with support from the EBRD are contributing to the establishment of a system of energy performance certificates for buildings. The system is expected to increase transparency in the construction industry, create awareness among buyers and property owners and facilitate the development of demand for low and zero energy buildings.

Establishing a Policy Dialogue with relevant stakeholders in the energy sector was a good practice for government authorities, business and professional associations to learn and introduce innovative approaches from the international and European best practices on energy efficiency and resources management.

Figure 3. Organigramme of the Energy Performance of Buildings legislation structure



Successful outcomes of policy dialogue undertaken by EBRD on energy performance of buildings lays the grounds for further collaboration on topics related to climate agenda, environmental protection and sustainable economic development. A successful case of policy dialogue has helped to establish trust and confidence among Kyrgyz authorities that what EBRD proposes is reasonable, implementable and generates benefits for Kyrgyz economy and local community. Even more important is the message these policy

dialogue initiatives are sustainable and market based as they could continue without constant grant support from the Donor community. Further areas of policy engagement, which the EBRD can explore in Kyrgyzstan are fine-tuning of legislation related to renewable energy, and to decarbonisation of the entire energy supply. In addition, relevant topics are introduction of circular economy concepts, sustainable consumption and production, and amendment of housing legislation.

4.1. EBRD's green investment initiatives and activities undertaken in Kyrgyzstan

Reflecting the progress of the policy dialogue undertaken by the Bank in Kyrgyzstan as well as the evolution of Bank's internal green investment initiatives, the EBRD has launched the Sustainable Energy Financing Facility in Kyrgyzstan (KyrSEFF).



KyrSEFF has not only invested in significant number of green projects, but also provided a direct contribution to policy dialogue and market development. By creating a critical mass of positive demonstration for policy makers, general public and market players, hence allowing them to embrace and support objectives and the approach suggested by the new legislation developed under the policy dialogue.

During the work of the KyrSEFF Program (2013-2022), 3355 projects were supported for

a total amount of more than 56 million US dollars in the residential and commercial sectors for building insulation, installation of energy-saving and renewable energy technologies, replacement of energy-intensive technological equipment, and water conservation. The program works in all sectors of the economy and significant results have been achieved, such as energy savings of about 199 million kWh per year, reductions in CO2 emissions in the amount of 67 thousand tons per year and water savings of more than 153 thousand m3 per year.

Under KyrSEFF several market reviews were conducted in order to map and track the evolution of market for advanced energy efficient technologies in Kyrgyzstan. The first one was conducted at the launch of KyrSEFF in 2013. It documented close to zero market penetration for wider range of green technologies eligible under KyrSEFF.

Table 1 below shows the increase in penetration rates of high efficiency technologies in Kyrgyzstan since the beginning of KyrSEFF. While not all increases can be attributed to KyrSEFF of course, KyrSEFF I and II played a role in increasing the market penetration.

Table 2. Increases in Market Penetration rates for High Efficiency Technologies

Technology	Market Size, '000 USD/year			Market Penetration Rates		
	2012	2016	2019	2012	2016	2019
Building envelope						
Thermal Insulation	44,320.0	49,860.0	55,400.0	1%	25%	30%
High Efficiency Windows	74,800.0	80,960.0	88,000.0	4%	25%	30%

HVAC Technologies

High Efficiency Boilers	14,548.0	16,730.2	18,185.0	1%	15%	40%
Solar Water Heaters	1,050.0	2,100.0	3,500.0	30%	50%	70%
Residential Air Conditioners & Air-to-Air Heat Pumps	17,400.0	20,010.0	21,750.0	2%	20%	30%
Heat Pumps (water & ground source)	-	-	-	n/a	n/a	n/a
Heating system upgrade, building level (total average)	-	500.0	1,000.0	0%	1%	3%
Solar-PV, building integrated	2,000.0	4,000.0	12,000.0	10%	20%	40%

Water saving technologies⁹

Container Wastewater Treatment	1,396.6	1,518.0	1,650.0	>1%	>1%	>5%
Drip irrigation systems	44.0	44.0	880.0	>1%	>1%	>20%
Sprinkler irrigation systems	563.2	563.2	704.0	>15%	15-20%	15-20%
Water savings taps, mixers & flushes	423.2	460.0	500.0	>1%	>1%	>30%

⁹ For tracked performance only applicable to KyrSEFF II

5. RECOMMENDATIONS

5.1. Lessons learned

Given the excellent assistance by EBRD, the Kyrgyz Republic became the first country on the post-Soviet area (except the three Baltic states) and a pioneer on setting legislation on energy efficiency of buildings based on the best experience from EU. Whereas, the outstanding achievements of the KyrSEFF program has motivated the Kyrgyz authorities, business and residents towards the energy and resource efficient measures whilst improving the livelihoods in the rural and urban areas.

Nevertheless, due to the innovative approach of the new legislation on LEPB, the Kyrgyz authorities confess that they have so far not been able to fully and effectively implement the legislation in practice. The reason of such failure caused by frequent political instabilities in the country resulted in staff turn-over within the target ministries as of continues reformation in the Government structure.

At the same time, it is important to note that there are gaps in the exchange of information and adaptation of work schemes of sub-institutions to modern requirements (bureauc-

ratic inertia), which is the reason why the introduction of energy efficiency, despite the general policy of Gosstroy on its development, is not implemented in practice.

EBRD's experience of supporting an inclusive and participatory policy dialogue in Kyrgyzstan has created a willingness of stakeholders in the energy sector to collaborate with each other toward the improvement of the national policy by shared visions and transparency. Despite a continuous and complex support provided through all seven calls of the Policy Dialogue, there is still a space for improvements. Successful outcomes of policy dialogue undertaken by EBRD on energy performance of buildings lays the grounds for further collaboration on topics related to climate agenda, environmental protection and sustainable economic development with EBRD and other international development agencies and IFIs.

The following recommendations need to be considered in future to ensure efficient implementation of the LES\LEBP in Kyrgyzstan:

5.2. Carry out tariff and social support reforms:

Household electricity tariffs in Kyrgyzstan make US\$0.01/kWh and is considered as the lowest among CIS countries and far below cost recovery levels (WB,¹⁰ 2021). Previous efforts to reform electricity rates have been abandoned due to concerns about public resistance. Adoption of energy and resource efficiency techniques will reduce utility bills paid by building occupants and allow them to use the savings for other purposes including for better quality of life. This is particularly relevant for residents living in single family buildings or for the owners of commercial

buildings. Even with the current low energy tariffs the savings for a standard family could represent savings equivalent to the 1.5 to 2 average monthly income. If to account for current average tariffs and under condition of accelerated retrofit of buildings targeting decarbonization of existing stock by 2050 and adoption of energy efficient techniques for all new construction (residential, public and commercial), the minimum annual savings at these conditions account for over EUR 25 million per year.

5.3. Extending sources of funding for energy efficient measures

Current energy system of Kyrgyzstan is overloaded and operates beyond the limits of its current capacity for safe and reliable operation. Frequent interruptions of energy supply, technical failures affect business and

local communities particularly during summer and winter peaks. Buildings including residential, commercial and public are the main final energy end consumer with over 55% share from the national final energy consumption. It

¹⁰ Analysis of the Energy Sector of the Kyrgyz Republic, World Bank, 2016



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is clear that with the further and fast demographic growth and high rate of construction, the national energy system will no longer be able to cope with the growing demand. Major reconstructions of the entire grid and new generation capacities are unlikely due to the scale of foreign investments needed, which is not likely under current vulnerable political situation. That means the most cost-efficient solution would be fast and resolute actions to improve energy efficiency at the end-use sectors where buildings play a key role. Unlike investments in energy sector, where large and international investors are a must, investments in energy and resource efficiency in buildings do not require international capital and can easily leverage and use private capital of local market stakeholders including of the population.

Kyrgyzstan could benefit from and aspire to the lessons learned from those European

experiences which are applicable to Kyrgyzstan, and in fact the situation with energy efficiency renovation in Kyrgyzstan is even more acute and pressing than in Europe. The quality of the building stock is far worse in terms of energy performance, building fabric quality and the building engineering systems employed. Climatic conditions are harsher than for the majority of Europe, and this makes the demand for energy higher if good quality indoor environments are to be maintained. In addition, there are many other wider concerns that are both applicable and of even greater concern for the decarbonisation of buildings in Kyrgyzstan. These include the security and reliability of energy supplies, the availability of funding for energy efficiency renovations and barriers related to capacities available, such as the level of awareness combined with the quality of the regulatory framework and its enforcement.

5.4. Introduce incentives for organizations and the private sector

The current policy support framework for renewable energy has not been successful in attracting the private sector to participate in renewable energy projects. Building private investor confidence in investment in the renewable energy sector would require well-designed support mechanisms tailored to specific national and local conditions. While the long-term stability of policy instruments is a key success factor, such instruments need to be constantly adapted to changing market conditions in order to remain competitive.

Support mechanisms need to be identified to facilitate the transition to a functioning renewable energy market. While feed-in tariffs are critical to supporting the initial development of a national renewable energy market, as such a market grows, the use of auctions could enable renewables to be purchased at lower prices by determining market prices. In addition, support mechanisms should focus on the decarbonization of end-uses, with a focus on heating and transport systems.

5.5. Develop/adopt a zero-consumption EE program

Develop/adopt a zero-consumption EE program focused on the conservation and sustainable use of all energy resources, not just heat conservation, emphasizing other energy saving benefits such as climate change mitigation and more visible for humans, the result is an impact on air quality. Among other things, it should be aimed at saving fresh and hot water, energy efficient equipment and technologies, energy efficiency of lighting, ventilation and air conditioning, as well as the use of renewable energy sources. The nearly

zero or very low amount of energy required should be covered to a very significant extent from renewable sources, including sources produced on-site or nearby. As explicit numeric thresholds or ranges are not defined in the EPBD, these requirements leave room for interpretation.

5.6. Ensure a constant monitoring of energy situation, as well as necessary updates in regulations and legislation

Regular monitoring is necessary to assess the implementation of the energy policy of Kyrgyzstan. The review of priorities and tools requires the use of effective evaluation tools. The methodology to be used for energy program evaluation should be consistent with the methodology adopted by international organizations such as the International Energy Agency, the International Renewable Energy

Agency (IRENA) and others. Evaluation provisions should be included in the development of policy instruments. Monitoring and evaluation should ideally be carried out by an independent organization. The results of the assessment should be submitted annually to the National Statistical Committee and the Cabinet of Ministers of the Kyrgyz Republic.

5.7. Extend the scope and level of ambition toward decarbonisation

Extend the scope and level of ambition toward decarbonisation and by reflecting the new provisions of the latest legislation on energy performance in EU. Further work will be required within the next years on:

- a) Reflecting lessons learned from the initial stage of the new legislation and fine tuning of specific provisions to match closer with market specifics;
- b) Follow closely on adoption of the latest revision of the EU Building Directive (expected by the end of 2022 or early 2023) and on transposition of all new provisions in EU countries;
- c) Consider integration of building life-cycle approach and integration of life-cycle circular economy consideration in the legislation. These would potentially accommodate the use of

- d) low-carbon materials and extending assessment of carbon performance beyond operation emissions. A good guidance on the subject can provide experience on implementation of the EU Level(s) in EU;
- d) Develop national building decarbonization Roadmap, similar to the one undertaken under the EU-supported Building Life¹¹ project;
- e) Enhance collaboration with the global professional community on the topic of whole lifecycle decarbonization of buildings. More specifically with the World Green Building Council, and the leading global building research facilities and industry associations: BRE, CSTB, REHVA, etc.

¹¹ WorldGBC: <https://www.worldgbc.org/buildinglife>

ANNEXES

ANNEX 1: Energy Efficiency Policy Dialogue Products:

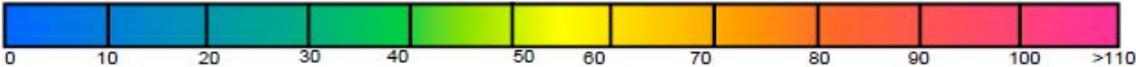
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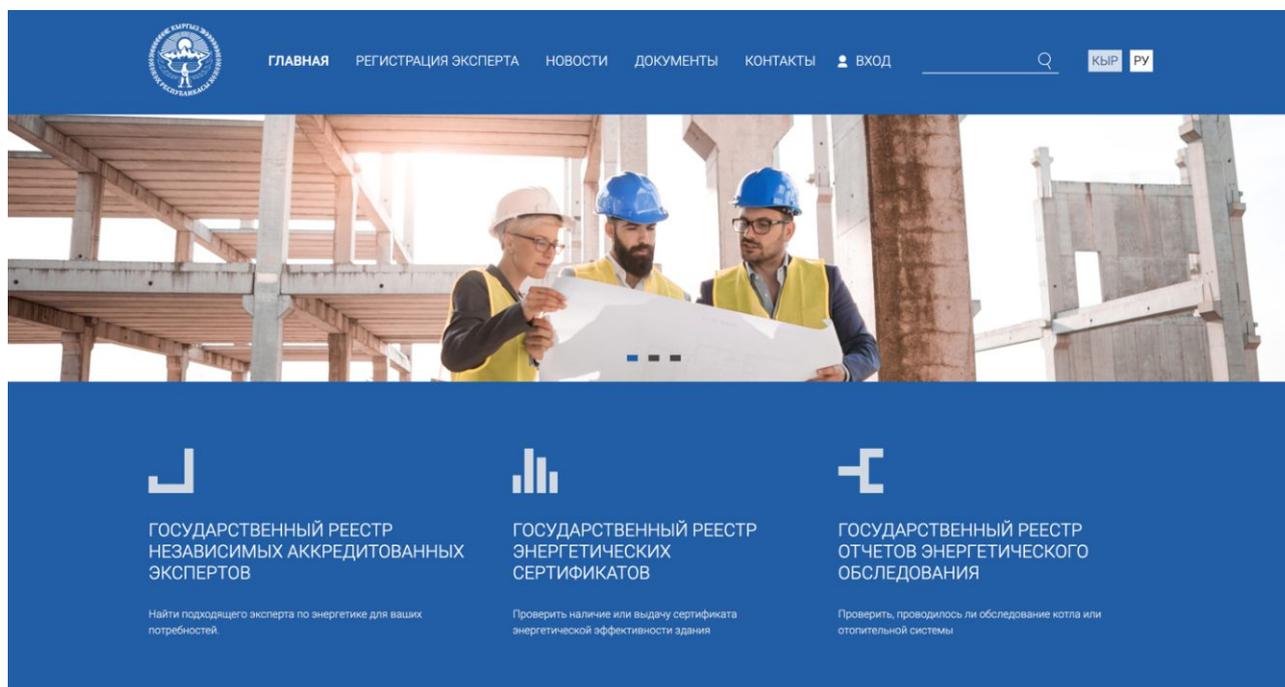
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ANNEX 1: Energy Efficiency Policy Dialogue Products

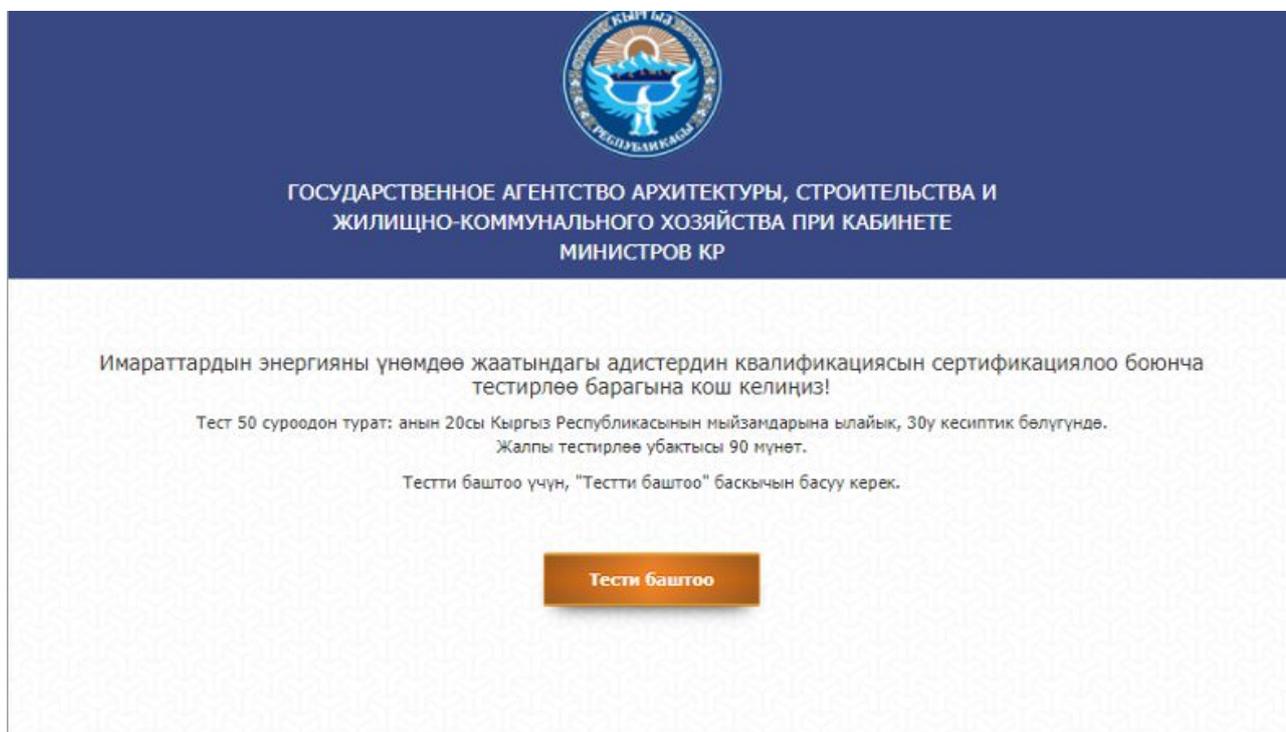
Picture 1. Energy Certificate of Building in according the Law of Kyrgyz Republic, #137, August 2011

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№ _____			
Здание:			
Адрес:		Город: Бишкек	
Назначение заполнения энергетического сертификата:		Климат. район:	
Новое здание <input type="checkbox"/> Энергет. ренов. здания <input checked="" type="checkbox"/> Продажа <input type="checkbox"/> Аренда <input type="checkbox"/> Другое <input type="checkbox"/>			
Градусо-сутки: Общая площадь пола (м ²): Коэффициент формы: Отопление: Горячее водоснабжение: Оценка для разного использования	ЭНЕРГЕТИЧЕСКАЯ МАРКИРОВКА ЗДАНИЯ	Тип здания: Многоквартирное здание	Существующее состояние
		Глобальный индикатор: Общая поставлен. энергия	кВтч/(м ² .год)
		Низкое потребление энергии	
		A	A
		B	
		C	
		D	
		E	
		F	
		G	
Высокое потребление энергии			
Оценка факт. потребл. энергии	<input type="checkbox"/>		
Метод расчета:	сезонный		
Мин. требуемый R_T :			
Стандартное значение R_g :			
Первичная энергия	кВтч/(м².год)	A	
	потребность в тепловой энергии на	кВтч/(м ² .г)	
			
Выбросы CO ₂	кг/(м².год)		
			
Меры, предлагаемые для повышения энергетической эффективности здания:			
Наружные стены: Крыша: Пол: Окна: Система отопления: Система ГВС: Другое:			
Дата:	Действителен до:		
Подготовлен:			
Контакты: тел.:	e-mail:	Подпись:	

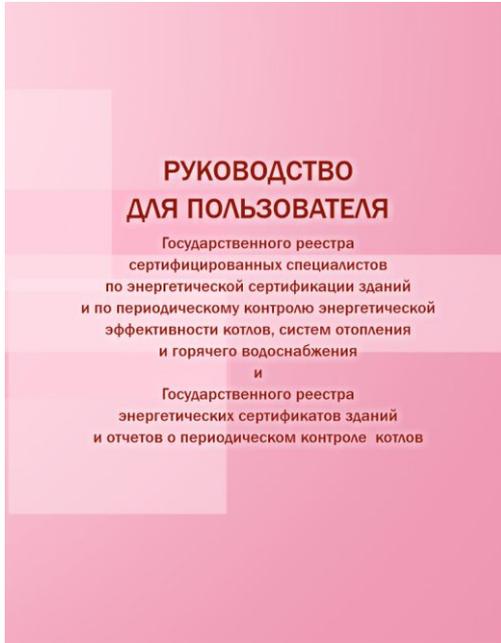
Picture 2. The on-line state register of Building Energy Certificates, accredited independent experts, energy inspection reports for boilers, heating and hot water systems.



Picture 3. The State on line testing system for accredited experts



Picture 4. The Guideline on the on-line state register of Building Energy Certificates, accredited independent experts, energy inspection reports for boilers, heating and hot water systems.



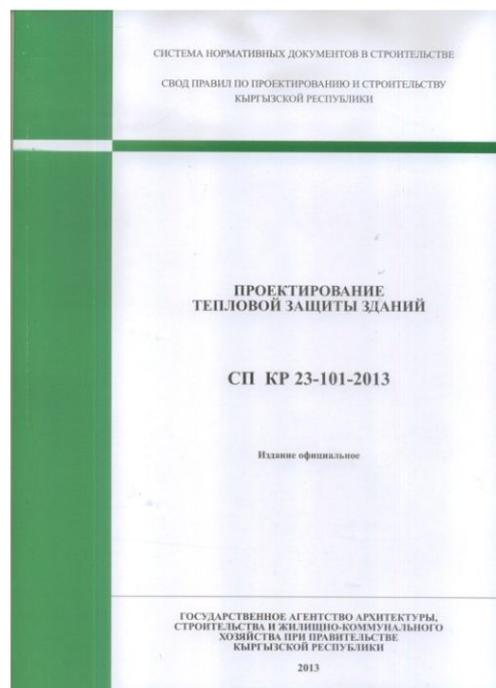
Picture 5. The list of the preliminary testing questions for the ECB expert accreditation



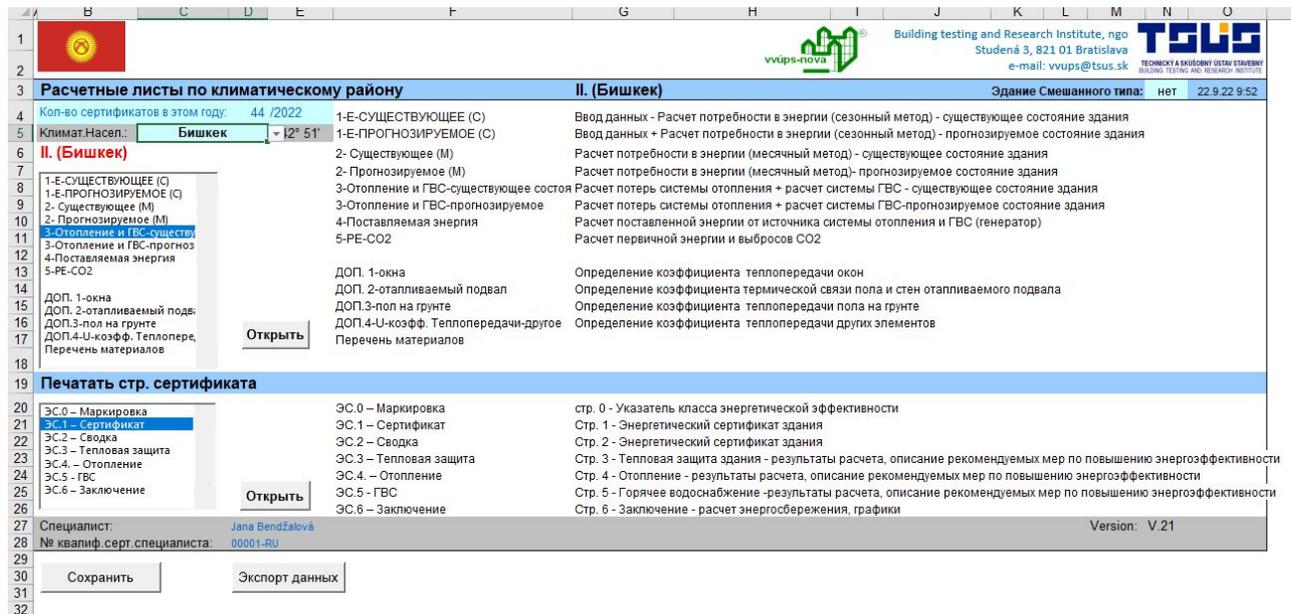
Picture 6. Construction norm "Thermal techniques" (Thermal insulation of buildings), SNiP KG 23-01:2013



Picture 7. Designing of thermal insulation of buildings, SP KG 23-101-2013



Picture 8. Excel calculation Tool for Energy Certification of Buildings



Расчетные листы по климатическому району II. (Бишкек)
 Здание Смешанного типа: нет 22.9.22 9:52

Коп-во сертификатов в этом году: 44 /2022
 Климат.Насел.: Бишкек → 42° 51'

1-Е-СУЩЕСТВУЮЩЕЕ (С)	1-Е-ПРОГНОЗИРУЕМОЕ (С)	Ввод данных - Расчет потребности в энергии (сезонный метод) - существующее состояние здания
2- Существующее (М)	2- Прогнозируемое (М)	Ввод данных + Расчет потребности в энергии (сезонный метод) - прогнозируемое состояние здания
3-Отопление и ГВС-существующее состояние	3-Отопление и ГВС-прогнозируемое	Расчет потребности в энергии (месячный метод) - существующее состояние здания
4-Поставляемая энергия	4-Поставляемая энергия	Расчет потребности в энергии (месячный метод)- прогнозируемое состояние здания
5-PE-CO2	5-PE-CO2	Расчет потерь системы отопления + расчет системы ГВС - существующее состояние здания
		Расчет потерь системы отопления + расчет системы ГВС-прогнозируемое состояние здания
		Расчет поставленной энергии от источника системы отопления и ГВС (генератор)
		Расчет первичной энергии и выбросов CO2
ДОП. 1-окна	ДОП. 2-отопливаемый подвал	Определение коэффициента теплопередачи окон
ДОП. 2-отопливаемый подвал	ДОП. 3-пол на грунте	Определение коэффициента термической связи пола и стен отопливаемого подвала
ДОП. 3-пол на грунте	ДОП. 4-У-коэфф. Теплопередачи-другое	Определение коэффициента теплопередачи пола на грунте
ДОП.4-У-коэфф. Теплопередачи-другое	Перечень материалов	Определение коэффициента теплопередачи других элементов

Печатать стр. сертификата

ЭС.0 - Маркировка	ЭС.0 - Маркировка	стр. 0 - Указатель класса энергетической эффективности
ЭС.1 - Сертификат	ЭС.1 - Сертификат	Стр. 1 - Энергетический сертификат здания
ЭС.2 - Сводка	ЭС.2 - Сводка	Стр. 2 - Энергетический сертификат здания
ЭС.3 - Тепловая защита	ЭС.3 - Тепловая защита	Стр. 3 - Тепловая защита здания - результаты расчета, описание рекомендуемых мер по повышению энергоэффективности
ЭС.4 - Отопление	ЭС.4 - Отопление	Стр. 4 - Отопление - результаты расчета, описание рекомендуемых мер по повышению энергоэффективности
ЭС.5 - ГВС	ЭС.5 - ГВС	Стр. 5 - Горячее водоснабжение - результаты расчета, описание рекомендуемых мер по повышению энергоэффективности
ЭС.6 - Заключение	ЭС.6 - Заключение	Стр. 6 - Заключение - расчет энергосбережения, графики

Специалист: Jana Bendžalová
 № квалиф. серт. специалиста: 00001-RU
 Version: V.21

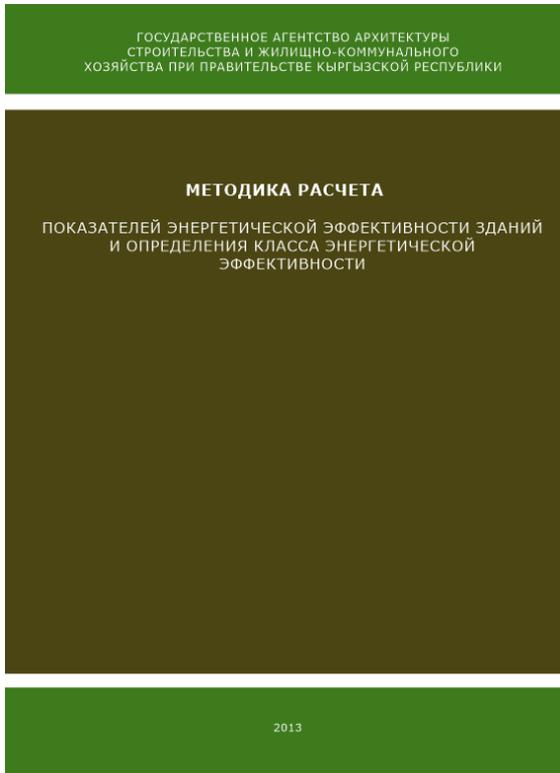
Сохранить Экспорт данных

Picture 9. Online video guide on accreditation processes for energy auditors

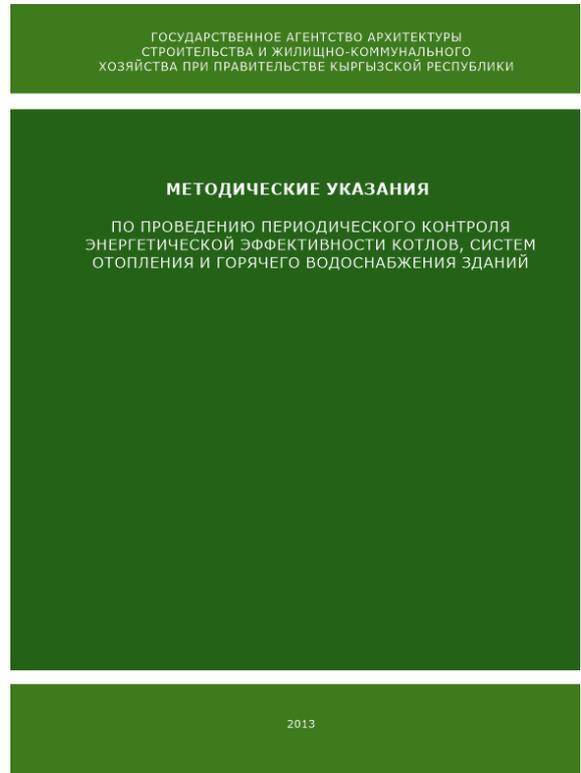


<https://www.youtube.com/watch?v=zMQKQ9-YdTY>

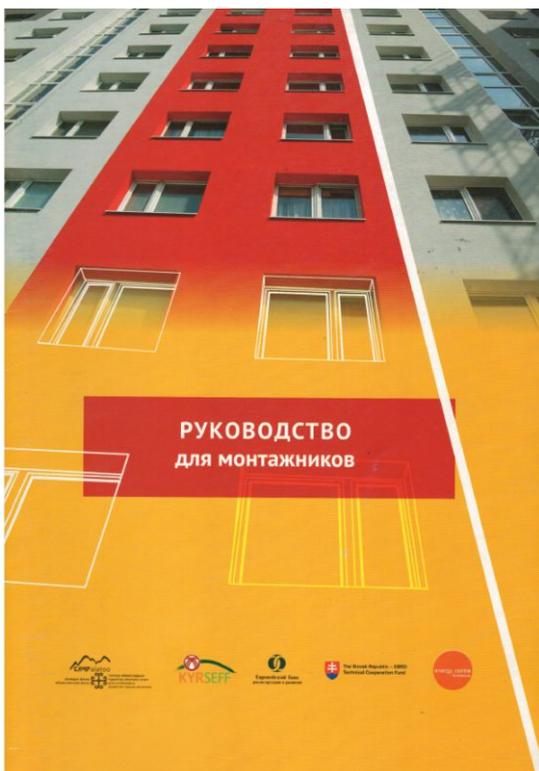
Picture 10. Methodology of calculation on Energy Certification of Buildings



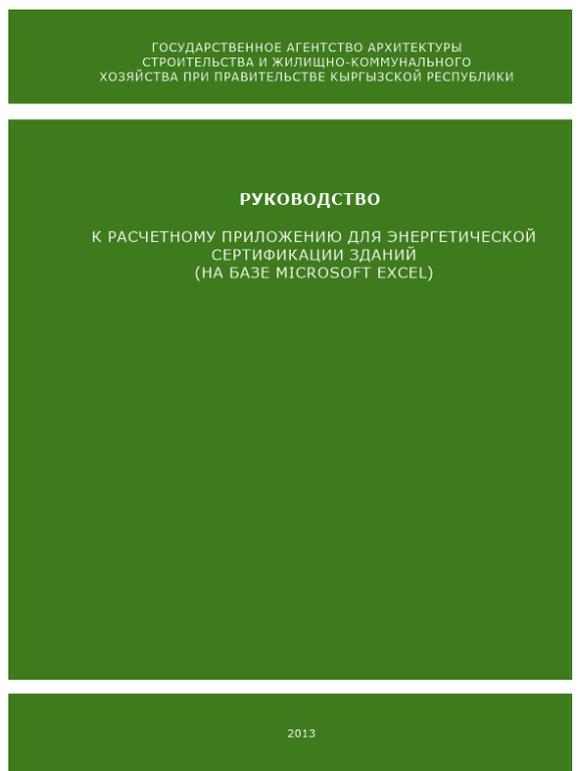
Picture 11. Methodology Guide on periodic control of energy efficiency of boilers, heating and hot water systems



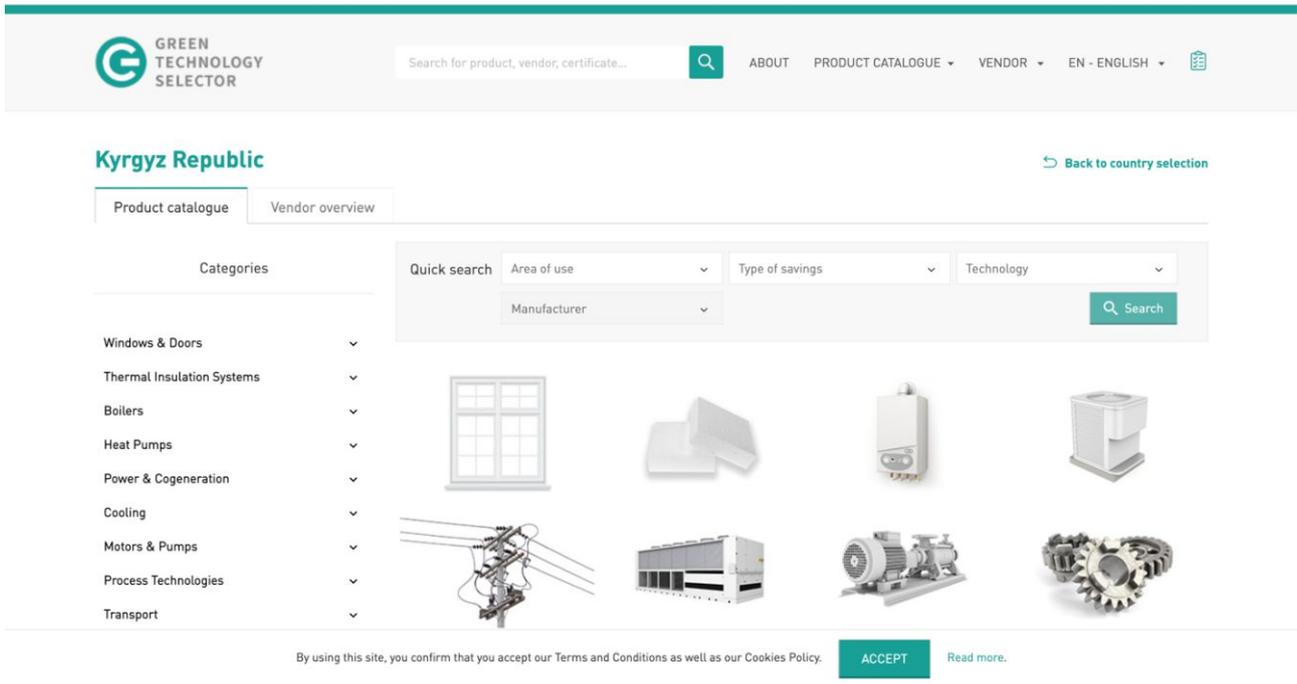
Picture 12. The installer guidelines on thermal insulation of house



Picture 13. The Manual to Calculation Tool for Energy Certification of Buildings (on the base of the Microsoft Excel Tool)



Picture 14. EBRD Green Technology Selector



https://techselector.com/kyrgyzrepublic-en/?__store=kyrgyzrepublic_en

Picture 15. KyrSEFF Web site



www.kyrseff.kg

ANNEX 2: Images of the Policy Dialogue and capacity building events

Photo 1. Policy Dialogue stakeholder consultations and capacity building trainings – EBRD and EU Delegation members were invited to events in Bishkek, 2019



Photo 2. Policy Dialogue stakeholder consultations and capacity building trainings – EBRD and EU Delegation members were invited to events in Osh, 2019



Photo 3. Screen shot of the Parliament open hearings of the draft Law on Energy Saving and Energy Performance of Buildings, Bishkek 2021

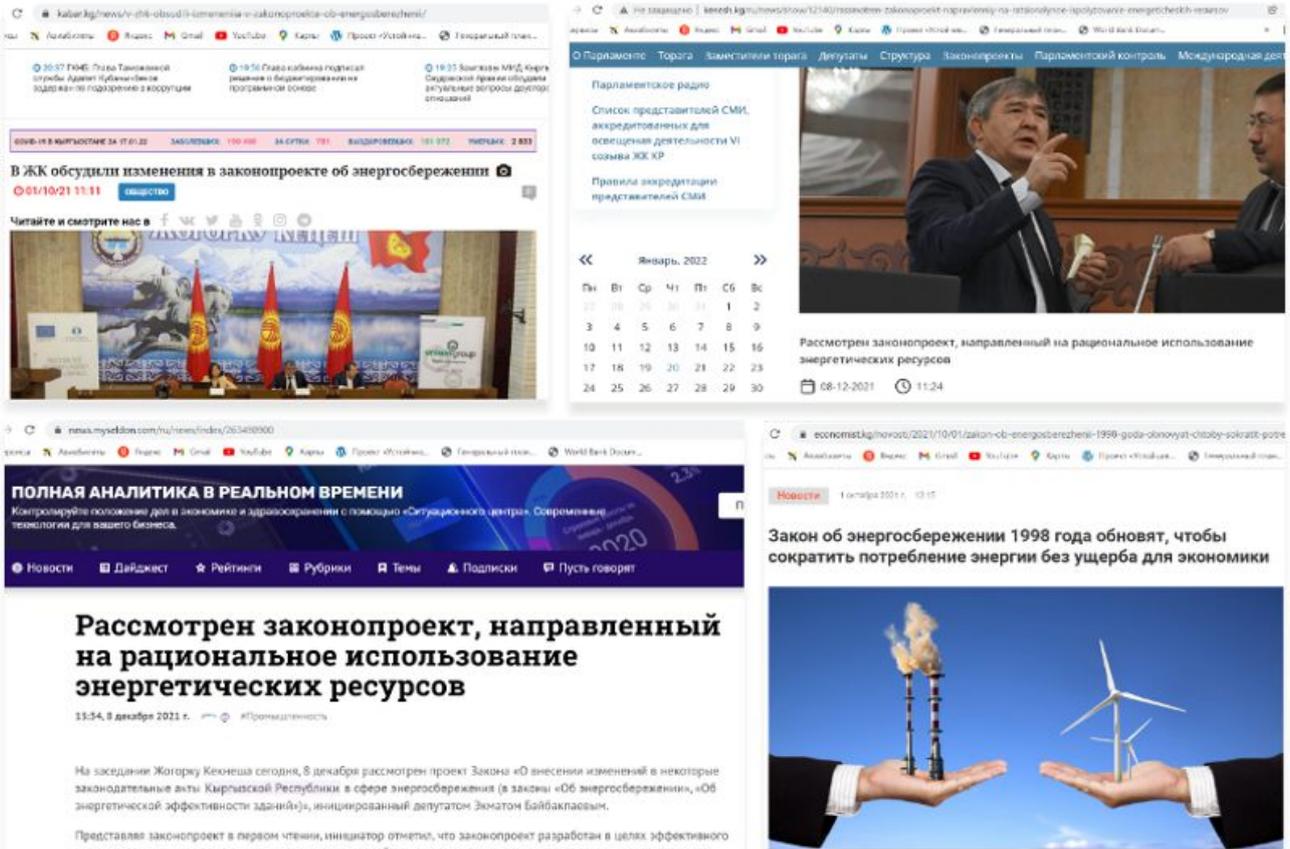


Photo 4. Parliament Panel discussion on the draft Law on Energy Saving and Energy Performance of Buildings, Bishkek 2021

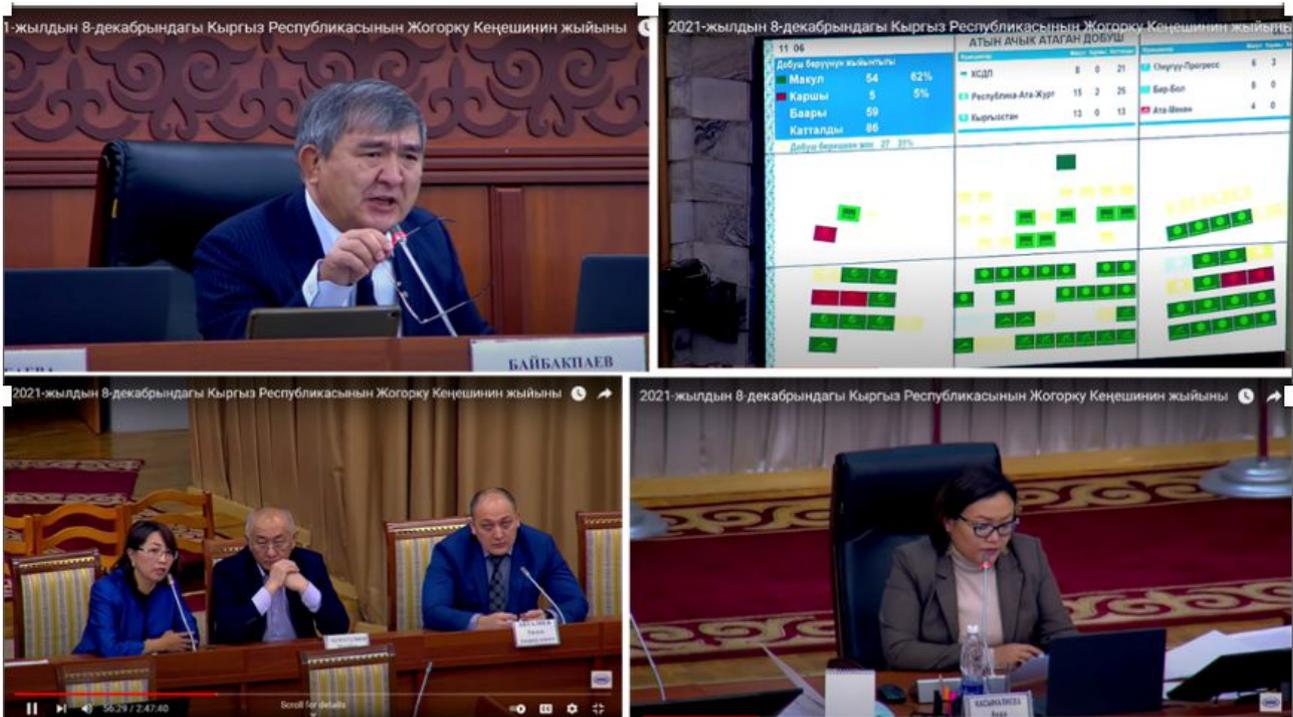
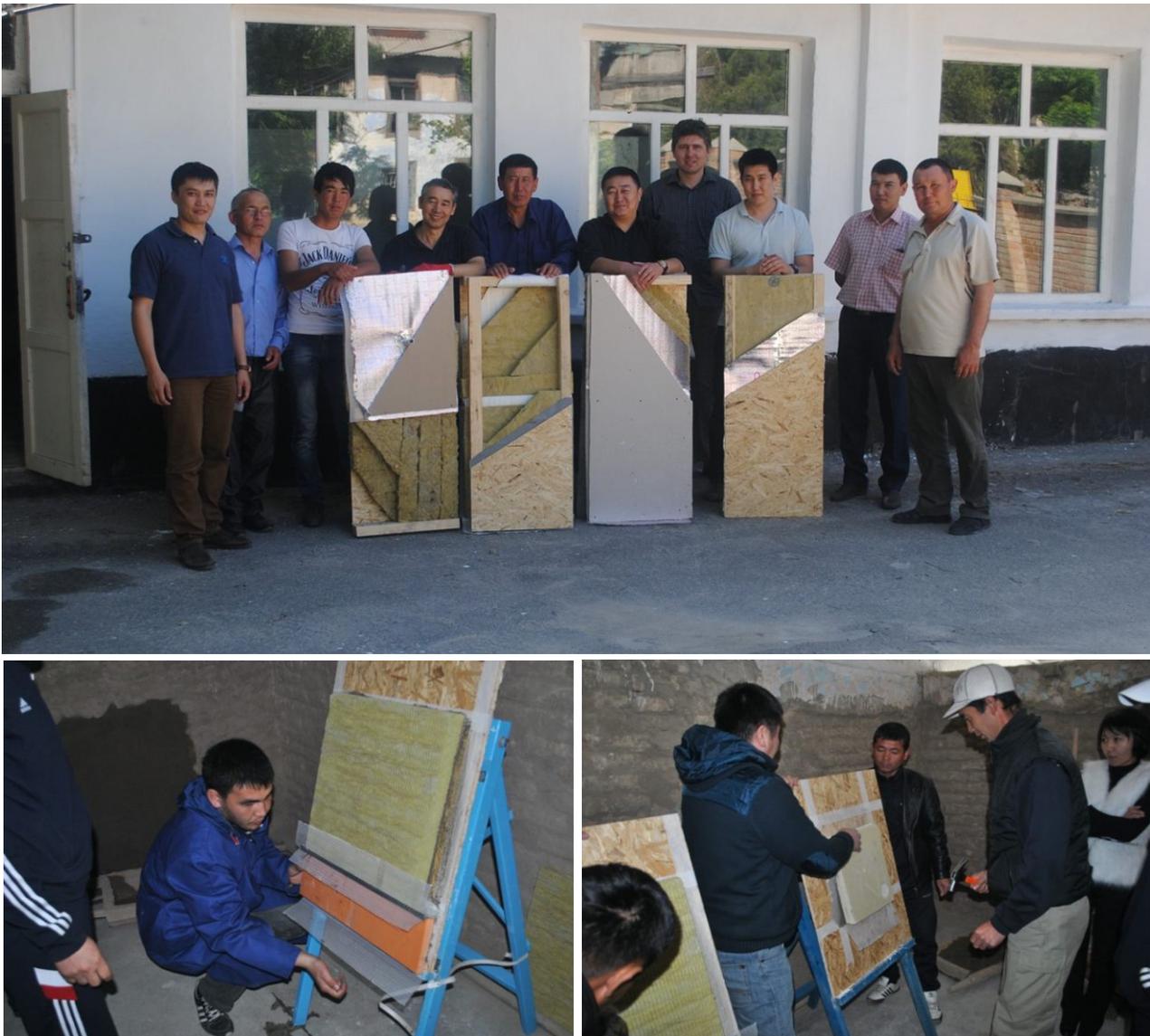


Photo 5. Capacity Building Workshop on ECB framework to the State Energy and Technical Inspectorate, Bishkek 2019



Photo 6. Capacity Building Workshop on techniques of the installation of thermal insulation, Bishkek 2017





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ANNEX 3: Relevant web sites

Institution / Resource

- Ministry of Energy of the Kyrgyz Republic
- State Agency for Construction and Architecture of Kyrgyzstan
- Online Registry of Accredited Specialists
- EBRD KyrSEFF Success stories

Website

<http://www.mep.kg/>

<http://gosstroy.gov.kg/ru/>

<http://www.energoreestr.kg/>

https://ebrdgeff.com/?country%5B%5D=26&content_type%5B%5D=projects&content_type%5B%5D=video