advancing with ESIF financial instruments

The potential for investment in energy efficiency through financial instruments in the European Union

Hungary in-depth analysis

May 2020

European Commission

European Investment Bank The EU bank

Disclaimer

Objective of the document

The objective of this report is to give an overview of the state and progress of energy efficiency developments in Hungary, and a preliminary assessment of investment needs and potential use of ESIF financial instruments to cover them. This report would serve as an input to the negotiations of operational programmes for the period 2021-2027.

This document is based on data and information released prior to the outbreak of the Coronavirus (COVID-19) pandemic. Although it is still not possible to properly estimate the impact of COVID-19, a severe economic recession is currently (May 2020) forecasted for year 2020 in the European Union (EU).

The recession may have deep repercussions in the years to come in the economic and financial systems of EU Member States (MS), therefore economic and financial context reported in the document may sharply deteriorate in the near future. Cohesion Policy resources, and public resources in general, are expected to play a crucial role to support the economic recovery in the next programming period.

Energy efficiency (EE) investments can play an important role to support the economic recovery, as (i) they have a considerable job creation effect; (ii) they contribute to reduce energy costs and greenhouse gas emissions; and (iii) they increase MS energy security.

There is a risk that, at least in the short run, the crisis will lead to lower energy costs due to a lower demand, thus can create lower incentives for EE investments. An appropriate use of financial instruments to support EE investments enables the use of Cohesion Policy resources in a revolving way and to generate leverage by crowding-in private co-financing in order to meet significant investment needs.

Information reported in the following sections is based on publicly available sources, in particular:

- Eurostat national statistics
- Odyssee database
- Draft version of the National Energy and Climate Plan of Hungary;
- Final version of the National Energy and Climate Plan of Hungary;
- EC assessment of the draft National Energy and Climate Plan of Hungary;
- Hungary Ex-ante assessment Phase 1 (TO1, TO2, TO3, TO4, TO8). Szazadvév. 2016;
- National Energy Efficiency Action Plan. 2017;
- Energy Efficiency Trends and Policies in Hungary; Odyssee-Mure training programme. 2018. HEA Hungarian Energy Agency;
- National Energy Efficiency Action Plan. 2017;
- Creation of a multi-sectorial investment platform in Hungary. EY. December 2018;
- Eurostat national statistics;
- Odysee-mure, Hungary country profile;
- EU building stock observatory;
- EU contraction sector observatory;
- EU Energy Poverty Observatory Member State Report Hungary;
- JRC Science for Policy Report, Accelerating energy renovation investments in buildings 2019;

- JRC Science for Policy Report, Synthesis report on the assessment of member states' building renovation strategies, 2016;
- JRC Science for Policy Report, Energy Service Companies in the EU 2017;
- Commission staff working document. The EU Environmental Implementation Review 2019 Country Report Hungary 2019;
- Commission Staff Working Document Country Report Hungary 2020;
- Allocation of Cohesion policy funding to Member States for 2021-2027. European Court of Auditors. March 2019;
- EPBD Implementation in Hungary, Status in December 2016;
- European Social Policy Network, In-work Poverty in Hungary, 2019;
- European Commission Spring 2020 economic forecasts

An interview was conducted with Hungarian Development Bank MFB

1. Context overview

The country has a population of about 9.8m inhabitants (2.2% of the EU27) which has declined over time (-2.7% in the last 10 years) and this negative trend is expected to continue. It is expected that by 2030, the population will further decrease to 9.5m[1].

Hungary underwent a challenging period related to the financial crisis in 2009, as most EU countries, but managed to gradually recover and eventually achieve one of the strongest economic expansions in the EU in recent years[2] up until the current crisis generated by the COVID-19 pandemic. The national GDP was increasing by 4% each year since 2014, even sustaining these levels during the overall EU slowdown of 2019 mainly due to the booming activity in the construction sector[3]. These overall positive economic conditions in recent years were also reflected in the labour market with a steady increase in labour participation and a gradual reduction of unemployment rates.

According to latest projections[4] related to measures undertaken to limit the spread of COVID-19 and the overall effects of the pandemic, the Hungarian economy is expected to contract significantly in 2020 and unemployment is expected to raise again. More specifically, the European Commission spring economic forecast for 2020, foresees a 7.0% contraction of the economy that will lead to an increase of unemployment to 7.0% (from 3.4% in 2019). In 2021 the economy is expected to rebound with a GDP growth of 6% (compared with 2020) but unemployment is expected to remain higher (6.1%) than the pre-crisis level.

The crisis could have a dual negative impact on EE investments, by both **reducing the demand** (e.g. households and enterprises may decide/be forced to postpone investments) **and the financial supply** (e.g. financial intermediaries may become more selective in their lending activity) **therefore increasing the importance of EE related supporting schemes.**

Final energy consumption in Hungary in 2018 was 18.5Mtoe (2% of the EU27) and it has slightly decreased (-1.1%) compared to 2005, while at the EU27 level it has decreased by 4.9%.

- Consumption per capita (1.9toe/person) in 2018 was 14% lower than the EU27 average (2.2 toe/person) however, it increased by 9% in the last 10 years (while at the EU27 level it decreased 6%);
- Energy productivity (GDP over the gross available energy) in 2018 was 4.6 Euro per Kg of oil equivalent (one of the lowest in EU27), showing a strong reliance on energy to generate GDP (this index increased of 9% in the last 5 years);
- Sectors contributing to final consumption are: households (34% of total), transport (24%), industry (23%) and services (12%). The building sector represents the largest end-use in Hungary, accounting for 47% of national final energy consumption: the third highest among EU countries.

1.1. Context overview

Hungary experienced a boom in the housing market in recent years characterised also by a sharp rise in housing prices. In fact, the housing price index increased by 28% between 2010 and 2017. High demand for new and existing dwellings was associated with a surge in housing credit, favourable labour market conditions and rising average income, which lead to an increase in housing investments[5]. This trend is expected to halt due to the current conditions and the projected contraction of the liquidity of households. The overall stock of dwellings in the country remains outdated. More specifically, the stock of dwellings in the country is 3.9 million (2% of EU27), with circa 97% built before 2000. It is estimated that 90% of the building stock require renovation, while more than 25% of the population live in houses with poor conditions (damp walls, leaking roofs).

As a transition country, Hungary is also carrying the negative legacy of the prefabricated building blocks. Such buildings, constructed with poor insulation materials, built in the period from 1960 to 1990 still represent 20%

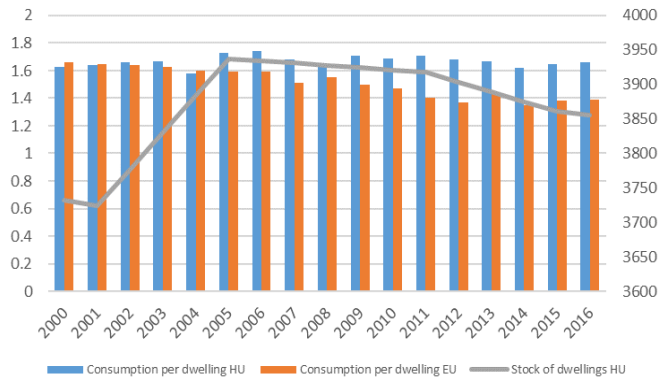
of residential buildings (the total stock of residential buildings estimated at 750.000). On the positive side, 36% of these buildings have been refurbished (as of 2019).

During 2000-2016, energy savings in the residential buildings were estimated at 0.9Mtoe, or 16% of 2000 consumption. Savings occurred mainly in the beginning of 2000s (90% of 2000-16 EE were done before 2013).

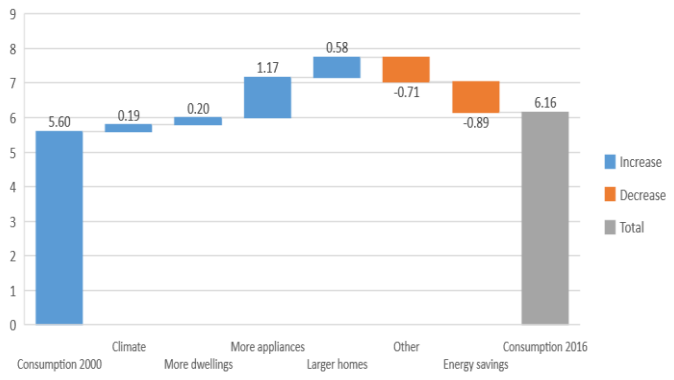
Regarding energy consumption:

- In 2017, households' energy consumption was 6.3Mtoe (2% of EU28);
- Consumption per dwelling was 1.7toe (19% higher than EU average);
- The residential sector accounted for 78% of buildings' consumption (75% of heat energy demand), 10% more than the EU average;
- Household energy use was dominated by gas (46%) and wood (28%), then electricity (15%) and heat (8%).

Dwellings (thou) and consumption (toe/dw)[6]



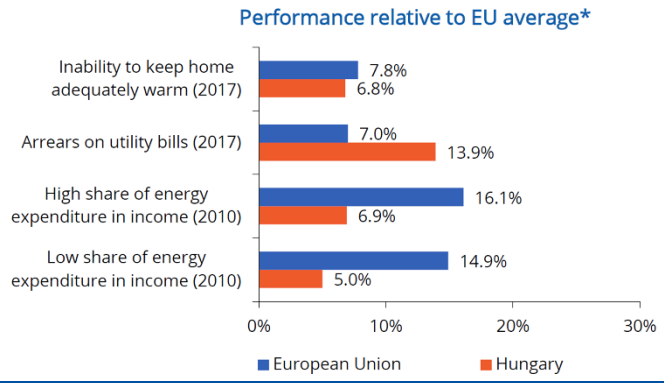
Households consumption between 2000-2016 (Mtoe)[7]



As also seen in the graphs above, consumption in Hungary has decreased in the last 10 years by more than 3%. This decrease was accentuated in the last 5 years to more than 6%. This decrease is partially due to energy savings but also due to the slight decrease in the total number of dwellings. As mentioned before, the booming in the construction sector is producing new dwellings with better standards.

According to the final NECP, a national strategy for the renovation of the building stock is currently being finalised (until end of March 2020) and will define the exact renovation targets. However, the COVID related economic crisis could have significant negative impacts on the building sector, thus slowing down the building construction/renovation activity, at least in year 2020. Detailed information in this respect are currently not available

ENERGY POVERTY[8]



As presented in the adjacent figure, the indicators used to define the energy poverty situation in Hungary portray an alignment with the EU countries average.

Circa 6.8% of households in Hungary are reported not to be able to keep their homes adequately warm (slightly lower than the EU average).

Hungary had high rates of people at risk of poverty until 2012 (above the EU average and exceeding 33% of the population)[9] but in recent years this

situation improved due to the favourable economic environment and improvement of households' incomes. In the 2017, the rate of people at risk of poverty reduced to 22% following the positive trends in the labour market. On the other hand, the percentage of arrears on utility bills seems to be much higher than the EU average, at almost double. This rate cannot be easily interpreted but could be associated to high energy costs due to poor insulation. The Hungarian state does not seem to provide benefits towards reducing energy poverty but seems to focus more on allowing tolerance towards households that are late on their bill payments and avoid energy disconnection. The current COVID related economic crisis can have a severe impact on households, potentially leading (at least in the short run) to an increase of households living in energy poverty conditions.

1.2. Overview of the public sector

Information on the building stock for the public sector is very scarce. Hungary has defined some renovation targets described in the National Building Energy Strategy which was drafted as a guide to implement the Energy Performance of Buildings EU Directive. This strategy for the period 2015 to 2020 had also defined some targets for public buildings[10]. More specifically, the intention has been to renovate 15,000 sq.m of area or 3 to 5 public buildings (corresponding to 3% of public buildings annually). The list of the selected buildings (about 100 buildings), is presented in the website of the Ministry for National Development. This target is also defined in the National Energy Efficiency Action Plan.

Overall, it is estimated that about 10,000 to 12,000 buildings are used by the service sector (including public administration). More specifically on the floor area used by public administration a rough estimate is 500,000 sq.m. In terms of energy consumption in the service sector (including public administration) this was estimated in 2017 at 2.1Mtoe (1% of EU28) decreasing over time (-8% last 5years VS +2% in EU28).

1.3. Overview of services and industry sectors

As described in the previous section, about 12.000 buildings are used by the service sector. In terms of energy consumption, the service sector accounts for 2.1Mtoe (1% of EU28) decreasing over time (8% decrease in the last 5years VS 2% increase in EU28).

Industry represents circa 31% of GPD[11] and it employs circa 21% of labour force[12]. The industry production index increased by 29% between 2010 and 2017[13]. In 2017, industry's energy consumption was 4.3 Mtoe (2% of EU28)[14] and it increased sharply (+17%) in the last 5 years. Sub-sectors contributing the most to consumption are chemical (26%), food and tobacco (14%), non-metallic minerals (13%). During 2000-2016 energy savings undertaken in industry were worth 1.5Mtoe or 41% of 2000 consumption[15]. Most of aforementioned energy savings were achieved in the beginning of 2000s (2/3 of 2000-16 EE were done before 2006).

2. EE targets, measures in place and proposed

EE is declared to be a priority in Hungary (e.g. in the National Energy Strategy and the National Energy Efficiency Action Plans) with a focus on (i) reducing energy imports; (ii) improving energy security and (iii) promoting energy affordability (especially in the residential sector). The overall economic conditions have been favourable in the country, especially after 2014, in order to promote a renovation agenda for buildings. The prospects going forward, related to renovation of buildings will need to be reassessed after the effects of the current crisis are more accurately measured.

Most measures outlined in the National Energy and Climate Plan (NECP) were previously defined in the National Energy Strategy [16] which was set up in 2010 and updated in 2015 (for the period 2015-2020). The main parameters of this strategy related to buildings are the following:

- The application of cost-optimal requirements to be defined for all buildings receiving state support for renovation;
- Near Zero Emission (NZE) standards for all new public buildings after 2019 and for all buildings after 2021;
- Application of new energy performance labelling system and detailed definition of NZE requirements;
- Obligation for energy audits and energy performance certificates with every transaction (sale or rent of properties);
- Technical requirements for renovation of existing buildings moving closer to requirements for new buildings;
- Set of annual renovation targets for buildings in all sectors;
- Implementation of awareness campaigns.

	EE targets (Mtoe)	2017 data	Target 2020	Target 2030
NECP overall targets	Primary energy consumption	24.5	27.0	31.0
	Final energy consumption	18.5	19.0	21.0

The policies and measures already in place, are relying mainly on financing schemes from ESIF and national funds both in the form of grants and FIs. Under the **continued implementation of existing policy measures**, final energy consumption in 2030 is expected to still be 18% higher than in 2016. The increase is attributable to the **rise in industrial production** and higher fuel consumption resulting from increasing income, while household energy consumption is expected to decrease. Under **existing policy measures** (not including the potential impact of the new policies), by the year 2030:

- Consumptions in households is expected to be remain constant since the reduction of the population will be offset by the increase residential floor area requiring heating;
- Consumption in services is expected to increase by 15% related to 2016;
- Consumption in industry is expected to increase more than 48% compared to 2016.

The NECP reports important new measures, for the period between 2020 and 2030, in particular the construction of two new nuclear power plants, allowing the phasing out of carbon power generation in Hungary and a strong push towards renewable energies (in particular solar energy).

According to the final NECP, three main measures are being added to the existing ones for the next programming period:

- Introduction of tax relief measures for businesses that undertake measures to improve their EE;
- The introduction of an obligation scheme for energy providers and end users;
- An overall promotion of ESCOs and EPC contracting (although specific measures are not defined).

In the EE context, it is important to mention the activities the Hungarian Central Bank is promoting in order to enable domestic banking, capital market, insurance and fund services and products to contribute more substantially to environmental sustainability (the so called green programme [17]). In December 2019, the Hungarian Central Bank published the '**green retail lending**' pilot scheme, to support EE financing in residential buildings[18]. Under this scheme, banks would be eligible for lower capital requirements based on the volume of performing mortgage loans and personal loans registered at the end of the calendar year, distributed between 1 January 2020 and 31 December 2023 to private persons for the energy-related renovation of residential buildings or for the purchase or construction of homes with at least 'BB' energy performance rating, and to condominiums or housing associations for energy-related renovation. Together with other awareness raising measures that the Hungarian Central Bank will deploy in the coming years, the afore-described initiative is expected to increase the demand for more efficient buildings and EE renovations.

In the following table, information regarding the main measures for the residential, industry and public sector are presented.

	Context/targets	Existing and planned actions/priority objectives
Residential Sector	• Based on the NECP, with the new measures, consumption in the household sector in 2030 will be 20% lower than in 2015 (10% with existing measures only) • The decrease will reach 30% in relation to natural gas and district heating consumption	<u>Existing measures:</u> • The measures are focusing on implementing and defining a set of requirements for renovations and construction of new buildings • These measures are complemented by a set of financing schemes mainly focusing on grants but including also FIs • Block house (panel) refurbishment programmes have been implemented over the years with grant support • For single houses and dwellings, the grant programme 'Warmth of homes' allowed the modernisation of more than 130,000 households since 2014, with EUR 86m of grant support • An example of financial instrument is the New Residential Loan Scheme provided by the Hungarian Development Bank <u>New planned measures/priority objectives:</u> • Development of household-scale **small power plants** (e.g. photovoltaic) combined with smart metering and electricity storage • **Modernisation of household heating equipment** and use of **modern biomass based heating** fuels to ensure the sustainable use of fuel wood • Installation of 1m smart energy meters in households
Industry	• With new policy measures, energy consumption in the industrial sector in 2030 will be 29% higher than in 2015 (the largest increase expected in renewables	<u>Existing measures:</u> • Since 2017 tax credit was introduced for EE investments, up to: 50% for SMEs; 40% for mid-caps; 30% for large enterprises[19] • On the financing side, SMEs related measures rely on ESIF grants, combined with loan programmes for EE and

	and electricity consumption, while a decrease is expected in coal consumption)	renewables (see dedicate section later on in the report)mostly implemented by MFB New planned measures/priorities: Hungary plans to explore the possibility of an EE obligation scheme to develop a large-volume ESCO programme, involving private funding, improving the energy performance of buildings, and a large volume multi-year household building energy programme, with the possible inclusion of the transport sector
Public Sector	• The targeting is defined at 3% of central government buildings (circa 15,000 sqm) to be renovated every year[20] • Under new measures, consumption in services (including public sector) at 2030 will be 8.2% lower than 2015	Existing measures: • Owners and operators of public buildings are required to prepare an EE action plans every 5 years, and to report implemented measures to the National Network of Energy Managers' • Renovation of public buildings has been supported with 100% grants New planned measures/priorities: • The NECP refers to the intention to further promote the use of EPC contracting

3. Market failures, main issues and barriers to investment

A number of specific issues hindering EE activities in Hungary are briefly reported in the following table. To the extent possible, the main potential implications of the COVID-19 crisis on barriers to EE investments have been considered.

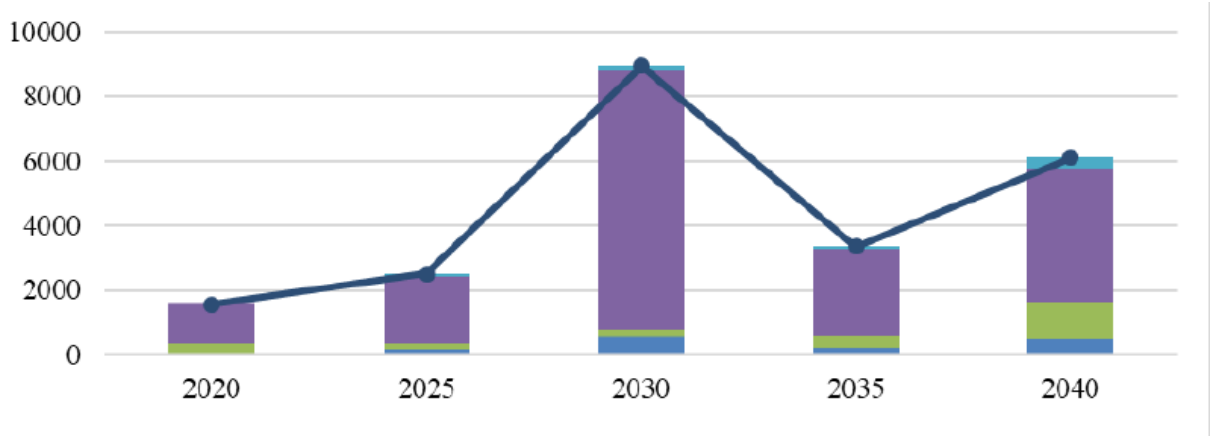
	Financial issues	Non-financial issues
Residential Sector	• Sharp rise in the cost of building materials and construction in recent years • High up-front costs for EE works (the ex-ante reports that beneficiaries are required to contribute to the investment with at least 10-30% own resources) • Households seem unwilling to undertake EE related debt • In wider investment and construction projects, the EE and renovation components of such investments cannot be easily separated [from non EE related renovations]. This often lowers the financial return of the investment. • The financing of individual houses is not always profitable for commercial banks due to the high monitoring and administrative costs. • The COVID crisis could have a negative impact as it could reduce households' disposable income/ financial resources. • Due to the uncertainty about future economic conditions, generated by the COVID crisis, households may decide to postpone long-term investments, such as EE renovations.	• Lack of information on EE costs and returns, and lack of awareness on benefits from EE renovations and the use of financial instruments • Lack of due diligence in the construction sector. This often leads to lack of quality results in renovations. High share of grey market in observed in the construction sector which hinders credibility • The results of EE projects cannot be precisely measured and forecasted in all cases (the results also depend on changing consumer habits, weather), this can be a serious risk limiting ESCO-type financing • A high number of renovations are self-performed [between 27% (central region) and 50% (other regions)] with limited energy savings • As reported in the NECP, since 2013 subsidies on the energy supply are in place, thus household energy costs of Hungarian consumers are one of the lowest in Europe. This low cost could be a counter incentive for households to conduct renovations
Industry	• Payback period of EE investments tend to be too long to be attractive • Banks are reluctant to finance SMEs, or investments below the value of EUR 1.4m • Banks are not able/willing to assess the cash flows of companies and the positive implications of EE renovations. They rather only consider the financial situation of a company and their ability to repay a loan without taking into account the EE savings. • The COVID triggered economic recession will have an impact on enterprises that may have more difficulties to access the	• Companies (in particular SMEs) tend not to be aware of the benefits of EE improvements • SME are unwilling to assume debt for EE renovations • ESCO companies have a very bad reputation due to past failed projects and default of some companies. They do not have an organised association and the market seems to be at a complete halt

	credit sector (due to the less performing economic and financial ratios). • Due to future uncertainty, enterprises may moreover reduce further their investment plans and they could postponing non-core investments.	
Public Sector	• Regulatory limits to borrowing capacity of municipalities and other public entities prevent from investing in EE related measures in forms different from grants • Budget constraints deriving from need to respond to the COVID crisis and debt capacity could become a relevant issue, as the Hungarian debt to GDP ratio is expected to increase to 75% in 2020 (it was 66.3% in 2019) and to remain on a similar level (73.5%) also in 2021	• ESCO market is very limited in the public sector due to both administrative constraints (e.g. procurement, regulation, etc.) and the availability of generous grants • ESCO companies have a very bad reputation due to past failed projects and default of some companies. They do not have an organised association and the market seems to be at a complete halt[21] • The weaknesses of the ESCO market have negative consequences also in the use of EPC contracting

4. Investment needs, gaps and implications for financial instruments

The final NECP foresees total investment needs for the period 2016 to 2040 at circa EUR 60.0bn (HUF 20,401bn) equivalent to circa EUR 1.6bn per year.

The NECP also provides a graph, with the breakdown of investment needs amongst the different policy areas (energy and heat production, transport, services, industry, households, and agriculture.



The purple colour[22] in the graph corresponds to the renovation needs for households. It is obvious that the main bulk of the foreseen investment needs are related to the specific priority for the period 2020 to 2040. The exact numbers are not provided but a rough visual estimate of the investment needs in household renovations is EUR 48bn (HUF 16,000bn).

Taking into account these estimated investment needs and the information provided in the previous section, the possible implications for financial instruments are outlined below.

Horizontal implications for financial instruments
• The financial crisis affected most stakeholders, however after 2014 the situation has largely improved with a boom in the construction sector and increase of individual incomes. The current crisis will require a reassessment of priorities, however the implementation of financial instruments in EE renovations will remain relevant in the years to come • Several financial instruments are being implemented in the current programming period mostly focusing on SMEs • The preferred forms of financing under financial instruments are loans and equity. However, guarantees are also provided in the agri-business sector • There are several financial instruments in the market that are combined with ESIF grants. This coordination between MFB (who is the main provider of FIs) and the relevant MAs in providing grants and Financial instruments as separate operations but within the same projects seems to be a preferred model in Hungary • There is still very low awareness on the benefits of EE improvements and low capacity in the market. Further capacity building but also technical assistance for EE and for the use of financial instruments could be beneficial • In the residential sector currently, one instrument is being implemented targeting EE • The Development Bank MFB has been implementing various financial instruments targeting SMES, including financial instruments dedicated to EE. Many of these initiatives have been closed due to the

usage of the available budgets. This is a positive indication that SMES are willing to use revolving financing for their EE improvements

- The investment needs for the period between 2020 and 2040 seem to prioritise the renovation of households

Residential sector	Public sector	Industry
• Due to the availability of grants, increasing awareness for the benefits of financial instruments is important • The use of financial instruments combined with technical assistance (ex-ante assessment reported that grant should be at least 30% of CAPEX), will lead to better quality results in renovations and higher energy savings. • Solutions able to support ESCO type financing could be very useful (as households tend to be reluctant to dedicate their (scarce) resources to EE)	• Public sector buildings have been using grants up to 100% for renovations • There is limited experience with financial instruments • However, the additional and strict requirements implemented for public buildings will require technical assistance to achieve the high standards of renovations • Financial instruments could support the development of the EPC model in the public sector, providing technical support and financial support both directly to Public Sector Entities (e.g. municipal lending) and to private or public-private entities (loans and/or equity financing)	• MFB has implemented several financial instruments for EE improvement for SMEs. • Building on this experience should be anticipated • The combination of financial instruments with grants seems to be a preferred model. • Combining financial instruments with technical support would provide additional credibility to the implementation of EE projects and securing better quality results with additional savings • Dedicated financial instruments for EE could also support the development of the EPC model in the industry sector and in the business sector at large

5. ESIF resource, existing financial instruments and main grant programmes

Hungary is one of the largest per capita beneficiaries of EU support (ESIF funding of EUR 25bn, on average of 2,532 Euro per person from the EU budget over the period 2014-2020). For **low carbon economy**, circa EUR 3.25bn has been allocated (EUR 1.85bn from ERDF; EUR 994mln from CF and EUR 394mln from EAFRD) [23] while for overall (ESIF backed) **EE related support** has been estimated in circa **EUR 1.5bn**[24].

The allocations[25] from the 5 ESI funds are:

- ERDF: EUR 10.7bn
- Cohesion Fund: EUR 6.0bn
- ESF: EUR 4.7bn
- EAFRD: EUR 3.4bn
- EMFF: EUR 39m

The ESIF allocations are deployed in the country through nine national and regional Operational Programmes (OPs). The most important OP for EE interventions is the OP Environment and Energy Efficiency (KEOP) with a budget of EUR 3.2bn (ERDF and CF). Other important OPs are the Economic Development and Innovation OP (GINOP-EUR 7.7bn) and the Regional OP for Central Hungary (VEKOP -EUR 500m)

Hungary is the **second Country in Europe in terms of ESIF contribution to financial instruments** (EUR 2.3bn) or circa 9% of its EU budget. **EE related financial instruments** received **EUR 204m** [26], equal to circa 13.5% of EE related support. Several financial instruments are currently active and most are managed by the **Hungarian Development Bank** (*Magyar Fejlesztési Bank or MFB)*. The agricultural guarantee fund AVHGA is also implementing guarantee financial instruments with ESIF.

Overall, MFB and AVHGA are implementing diverse financial instruments taking the forms of loans, guarantees, and equity. However, it is important to highlight the fact that several financial instruments are implemented in combination with ESIF grants[27]. This model is implemented through the coordination of MFB with the respective MAs whereby the financing products under the financial instruments are approved by the financial intermediary and the grant by the MA. In practise, these so called 'combined' programmes are distinct/separate operations targeting the same projects. This is an important aspect of the Hungarian financial instrument landscape that needs to be taken into account for the future.

5.1. Financial Instruments

Hungary has been accumulating experience in the implementation of financial instruments primarily through MFB and also through AVHGA. Both institutions have a primary target to support SMEs however especially MFB has been expanding its scope to more specialised sectors such as RDI, EE and social economy.

Overview of Financial instruments implemented in the current period

Under MFB, 16 financial instruments have been identified as being implemented in the current programming period with ESIF. These Financial instruments have been financed by The OPs Environment and Energy Efficiency (KEOP), Economic Development and Innovation (GINOP) and Regional OP for Central Hungary (VEKOP). The Financial instruments are presented in the table below.

Loan Facilities	Combined Loans with grants	Equity
1. Supporting RDI for SMES	6. Supporting RDI for SMEs	12. VC Intellectual property
2. Enhancing Competitiveness of SMEs	7. Development of New Generation Access networks	13. VC smart specialisation
3. Energy Loans for SMEs	8. ICT development for companies	14. VC for seed and pre seed
4.Improving EE in residential sector	9. Capacity building for SMEs	15. Digitalisation fund
5.Promoting employment	10. Supporting food companies	16. VC Irinyi
	11. EE for SME buildings with use of renewables	

According to data presented by MFB[28], the financial instruments have been successfully implemented and many needed to close earlier than expected due to over-commitments of initial budgets.

Regarding the agri-business sector, the guarantee fund AVHGA specialises in setting up and implementing guarantee schemes mainly focusing on SMEs. In 2016, AVHGA in cooperation with EIF launched a facility that would combine a COSME counter guarantee with the AVHGA guarantee under EFSI. This facility would target to support more than 2000 agricultural SMEs with loans from financial intermediaries amounting to more than EUR 160m.

Financial instruments with a closer focus on EE

Based on the MFB Financial instruments outlined above the following financial instruments specifically focusing on EE are further elaborated:

- **Energy loans for SMEs**: This facility was implemented in 2017, targeting SMEs and the improvement of EE in buildings with the use of renewables. The financing was provided with 0% interest rate loans with a tenure up to 15 years. The loan amount would cover 90% of the project (remaining 10% own participation). The budget of the facility was EUR 177m.
- **Loans for Improving EE in housing**: This facility was implemented in 2017, targeting individual home owners and home owners associations in multi apartment buildings. The financing was provided through 0% interest rate loans with a maximum tenure of 20 years. The financing would cover 90% of the EE renovations (10% own participation). The budget of the facility was EUR 370m.
- **Combined loans for EE for SME buildings**: The facility was implemented in 2017, targeting SMEs and their EE renovation projects with a focus on the usage of renewable energy (mostly solar panels). The financing was a combination of grant (max 45% of CAPEX and in the range of EUR 9k - 150k) and loan (EUR 9k-150k), while own resources were at least 10% of the investment. Tenor of the loan, up to 10 years.

It is worth also mentioning that a soft loan facility has also been implemented with national funds through the Ministry of Economy. The facility was called '**Home saving scheme'** and was implemented in 2016 with a budget of EUR 143m[29]. Based on the financial instrument landscape in Hungary, the following lessons learned can be highlighted.

Lessons learnt	Opportunities for the post 2020
• There is a strong potential for EE improvement in Hungary and high investment needs in all sectors.	• Build on the experience in implementing financial instruments especially in the form of loans.

• The housing sector in the country has been experiencing a boom and the improvement of household incomes is a positive factor for the implementation of financial instruments. • Hungary has been accumulating experience with the use of financial instruments. • Dedicated Financial instruments in EE have been implemented for SMEs and residential. • Public buildings are still being renovated with the use of grants, the use of financial instruments has not been tested. • In the residential sector, despite the provision of grants, financial instruments seem to have been well received by the beneficiaries. • An interesting aspect is the preference to the model combining financial instruments with grants. This model has been implemented through the coordination of MFB with MAs with positive results. • ESCOs are not active in the market. The potential to activate ESCOs need to be further explored. • The research revealed a market failures related to the often low quality of renovation works. This could imply a more ambitious use of technical assistance at the project level to improve results.	• Build on the experience in combining loans with grants especially in the residential and SME sectors. • Despite the limited experience with financial instruments for EE in public buildings, the overall conditions are positive to introduce financial instruments also in this segment. • The use of financial instruments could be focused on the promotion of ESCOs and EPC contracting which remains very limited in the country.

5.2. Main ESIF grant programmes

The main grant programmes financed with ESIF are the following:

- Grant programme Energy Efficiency Subsidies for Residential EE: This programme was implemented by the Ministry of National Development with funds from the OP Environment and Energy Efficiency (KEOP). The financing was provided in the form of grants to home owners for the replacement of doors and windows and improvement of insulation.
- Grant programme Energy Efficiency Subsidies for national and local government buildings: This programme was also implemented in 2015 by the Ministry of National Development with funds from the OP Environment and Energy Efficiency (KEOP). The eligibility criteria of projects was defined by a government decree and the grant financing was for 100% of the renovation budgets.

NOTES

[1] EUROSTAT
[2] Commission Staff Working Document Country Report Hungary 2020
[3] Commission Staff Working Document Country Report Hungary 2020
[4] European Commission Spring 2020 economic forecasts. May 2020
[5] EU construction sector observatory, Hungary country fiche
[6] Odyssee database
[7] Odyssee database
[8] EU Energy Poverty Observatory; Member State Report; Hungary. June 2020
[9] EUROSTAT
[10] EPBD Implementation in Hungary, Status in December 2016
[11] Central Intelligence Agency, the world fact book (data refers to year 2017)
[12] About Hungary. Hungarian Investment Promotion Agency. 2017 (data refers to year 2016)
[13] EUROSTAT
[14] EUROSTAT
[15] Odyssee database, technical final energy savings
[16] EPBD Implementation in Hungary, Status in December 2016
[17] https://www.mnb.hu/greenfinance/english
[18] https://www.mnb.hu/letoltes/green-retail-lending-in-hungary.pdf
[19] EE trends and policies in Hungary; 2018; Hungarian Energy and Public Utility Regulatory Authority
[20] EE trends and policies in Hungary; 2018; Hungarian Energy and Public Utility Regulatory Authority
[21] JRC Science for Policy Report, Energy Service Companies in the EU 2017
[22] The remaining colours correspond to: Green-Transport; Dark blue-Energy production and heating; Light blue-Services; Industry and agriculture do not feature in the graph. The amounts are in bn HUF.
[23] https://cohesiondata.ec.europa.eu
[24] Data provided by DG REGIO based on an analysis of fields of intervention
[25] Commission staff working document. The EU Environmental Implementation Review 2019 Country Report Hungary 2019
[26] Data provided by DG REGIO based on an analysis of fields of intervention
[27] https://www.fi-compass.eu/sites/default/files/publications/Fi-Campus-DAY2-CASE-STUDY-LowCarbon_G-Nykos_0.pdf
[28] https://www.fi-compass.eu/sites/default/files/publications/25062018-brussels-d2-Gabor-Soos_0.pdf
[29] JRC Science for Policy Report, Accelerating energy renovation investments in buildings 2019

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