



ROMANIA

Consolidation of the Strategic Planning Capacity of the Ministry of Regional Development and Public Administration for Renovation of the National Building Stock for Energy Efficiency and Seismic Risk in Romania

July 2, 2019

New Long-term Renovation Strategy – draft Strategy framework



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Context and Scope of the project

- The World Bank is providing advisory services to the Ministry of Regional Development and Public Administration to support the consolidation of its strategic planning capacity to renovate the national stock of buildings for the purposes of energy efficiency and preparedness to seismic risks.
- The project addresses in an integrated manner the issues of energy efficiency and seismic risk through two separate but interlinked components.
- The scope of energy efficiency component is:
 - the elaboration of a gap analysis of the current set-up for energy efficiency in Romania and road map to address gaps
 - the preparation of new National Long-term Renovation Strategy for energy efficiency.
- This presentation outlines the framework for the new Long-term Renovation Strategy for Energy Efficiency (EE) in buildings required under the revised EU Energy Performance of Buildings Directive.

National Long-term Renovation Strategy for Energy Efficiency in Buildings (LTRS Strategy)

- I. Introduction**
- II. National building stock**
- III. Renovation analysis**
- IV. Strategic objectives, policies and actions**


Main conclusions of gaps analysis

- long term programs and more sustainable financing schemes focused on multi-apartment, single family buildings and diversified funding sources
- Improved technical quality on energy performance certification
- Cost optimality methodologies and oversight (increased training for stakeholders, standard audits/designs, defined and strictly monitored pace of implementation, centralized program coordination unit)
- More soft measures to support implementation
- Policy support to strengthen buildings data management, seismic and structural safety, climate change, energy poverty
- Improved coordination among key stakeholders.



All ingredients
of a successful
LTRS

Amendment of the Energy Performance of Buildings Directive (EPBD) (2018/844/EU), main changes:

- Member States have to focus more on the energy renovation of their building stock to transform it into a highly energy efficient and decarbonized stock by 2050, facilitating its cost-effective transformation towards nearly zero-energy buildings (nZEB)
- Long term renovation strategy is now requirement under revised Energy Performance of Buildings Directive (EPBD). More ambitious targets and more focus on implementation.
- There are new changes for tackling e-mobility barriers: 
 - ✓ for non-residential buildings undergoing major renovation, with **>10** parking spaces, Member States shall ensure the installation of at least **1** recharging point for electric vehicles or ducting infrastructure for at **5** parking points
 - ✓ residential buildings undergoing major renovation, with **>10** parking spaces, installation of ducting infrastructure, namely conduits for electric cables, for every parking space to enable the installation, at a later stage of recharging points for electric vehicles

Targets

- The EU has strengthened its overall energy efficiency target for 2030 of 32.5%
- The Romanian draft NECP proposes an objective of 36.7 Mtoe primary energy consumption, equivalent to a 37.5% reduction
- The estimation for primary energy consumption to reach 36.7 Mtoe (+13% v 2016) in 2030, compared to the expected primary energy consumption of 30.3 Mtoe in 2020 represents a massive change compared to the historic trend.
- Final energy consumption is expected to reach **23.7 Mtoe** (+6% v 2016) in 2030.
- in 2019, the country's final energy consumption is estimated at 24.06 million tons of oil equivalent (toe), up 2.4 percent year-on-year. In 2020, the indicator will record an increase of 2.5 percent to 24.66 million toe. In the years 2021 and 2022, the energy consumption will be 2.4 percent higher and will reach 25.25 million toe and 25.85 million toe.

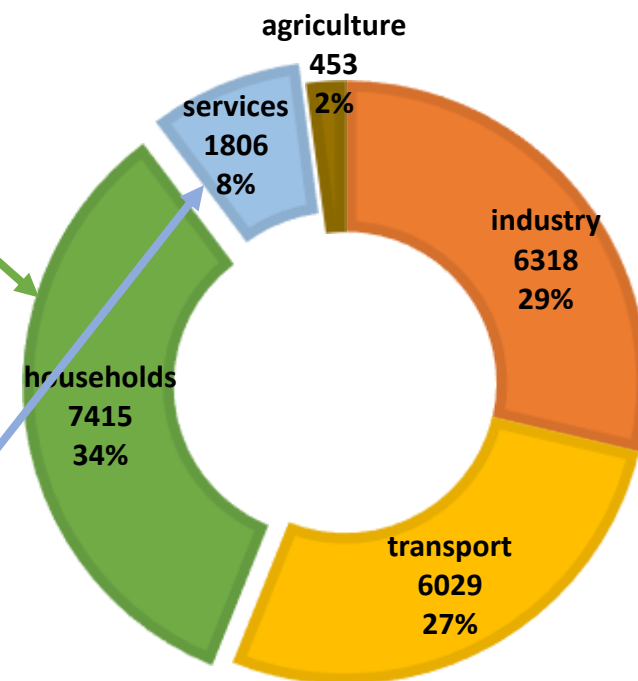
Source: National Commission for Strategy and Prognosis (CNSP)

- Romania needs to approve new renewable energy support schemes focusing on local and community projects, and to scale up and diversify investments in energy efficiency.
- Romania needs to join the group of progressive EU Member States calling for increased EU climate ambition.

Breakdown of buildings energy consumption in Romania

| | | | | | |
|--|------|-------------|------|------------|------|
| District heat consumption in residential buildings | 0.8 | Heat | 6.36 | households | 7415 |
| On site energy generation with wood or biomass heaters | 3.11 | | | | |
| On site energy generation with geothermal in residential buildings | 0.01 | | | | |
| Gas consumption | 2.16 | | | | |
| Oil consumption | 0.21 | | | | |
| Coal consumption | 0.07 | | | | |
| On site energy generation with solar PV in residential buildings | 0.04 | | | | |
| Electricity consumption of residential | 1.02 | Electricity | 1.06 | | |
| District heat consumption of non-residential | 0.19 | Heat | 1.08 | services | 1806 |
| Renewable consumption of non-residential | 0.02 | | | | |
| On site energy generation with geothermal in non-residential buildings | 0.01 | | | | |
| Gas consumption of non-residential | 0.78 | | | | |
| Oil consumption of non-residential | 0.08 | | | | |
| Coal consumption of non-residential | 0 | | | | |
| Electricity consumption of non-residential | 0.71 | | | | |
| Energy consumption of space cooling for non-residential | 0.02 | | | | |

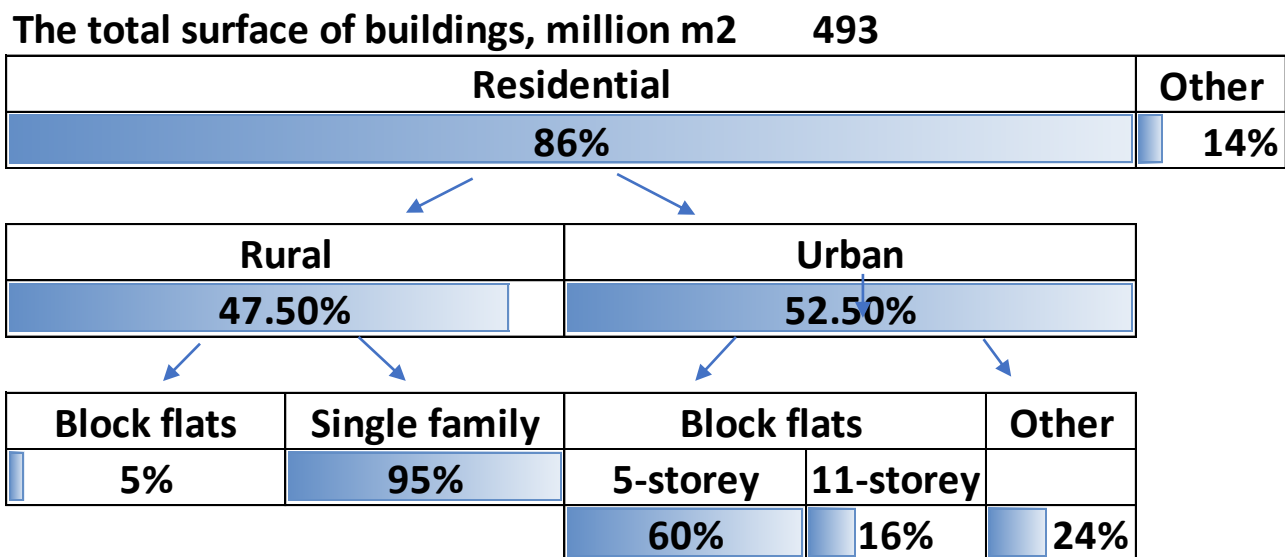
FINAL ENERGY CONSUMPTION IN 2016, TOTAL: 22 280 KTOE



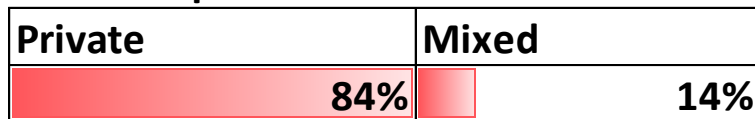
Buildings in Romania are consuming around 8 Mtoe energy which is around 40% of final energy consumption.

Source: Own calculations based on EU Buildings database, Eurostat 2013-2016 data

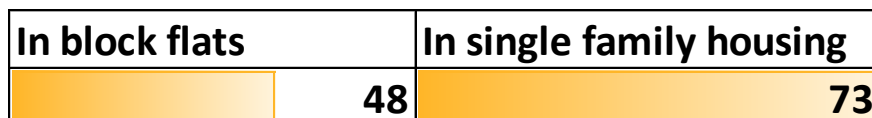
National buildings stock (data to be verified)



Ownership



Heated area m²



Strategic objectives and impact indicators

Strategy objectives

- Improve the energy efficiency of existing buildings by reducing energy consumption produced from the fossil fuels and contribute to reduced local and global air pollution
- Improve internal comfort levels
- Extend the lifetime and structural safety of the renovated buildings



What renovation pace should be pursued?

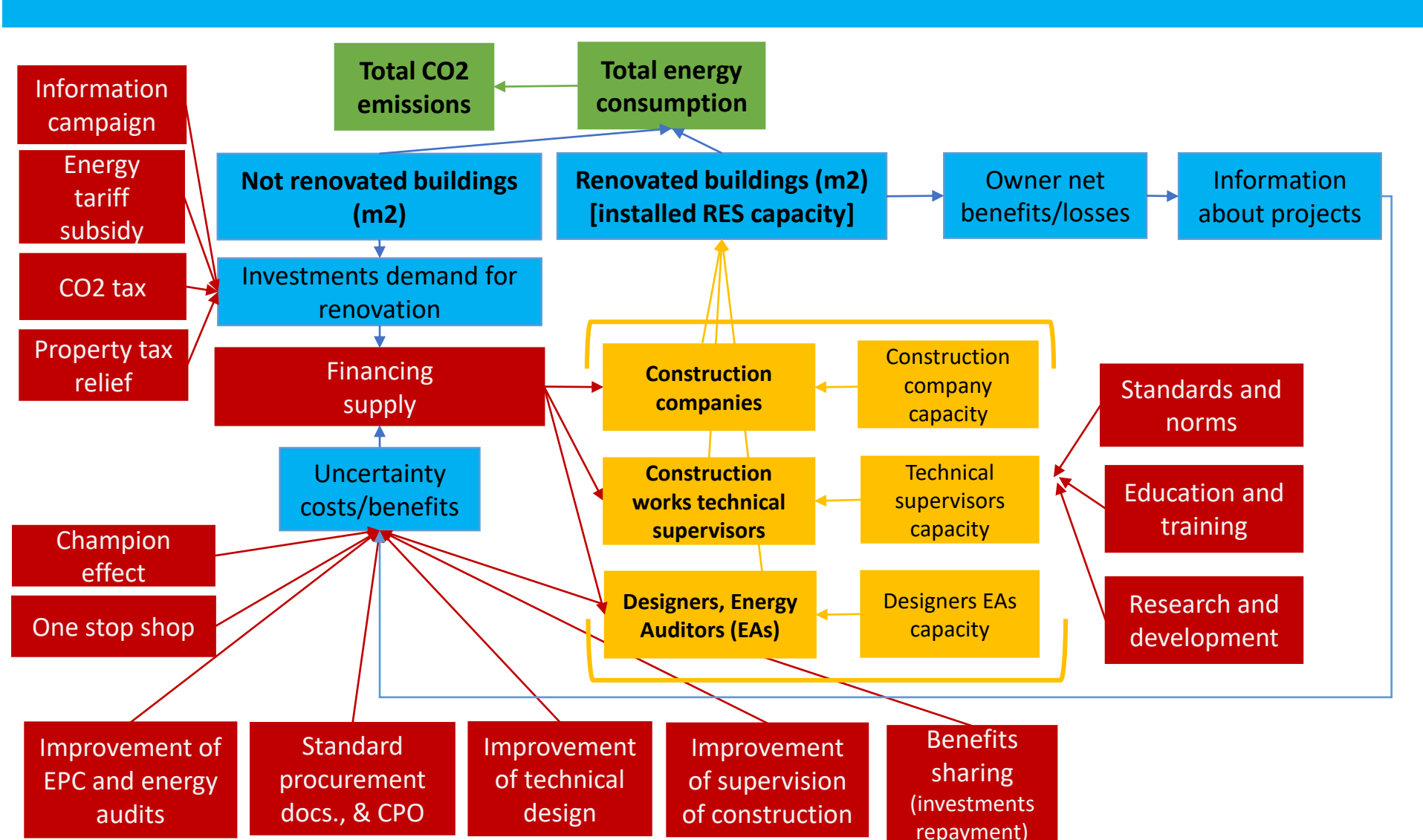
| Total area m2 of buildings to be renovated | Renovated area per year m2 | Annual renovation rate % | No of years to renovate all buildings | Annual renovation cost Meuro | Annual energy savings Mtoe | How many Multi-apartment (MAB) or Single Family buildings (SFB) per year this renovation rate would represent |
|---|----------------------------|--------------------------|---------------------------------------|------------------------------|----------------------------|---|
| 394,759,280 ~80% of the total building stock | 1,855,369 | 0.47% (current) | 213 | 195 | 0.011 | ~470 MAB or 20,600 SFB |
| | 3,947,593 | 1.00% | 100 | 414 | 0.024 | ~1000 MAB or 43,860 SFB |
| | 9,868,982 | 2.50% | 40 | 1,036 | 0.060 | ~2500 MAB or 109,650 SFB |
| | 11,842,778 | 3.00% | 33 | 1,243 | 0.073 | ~3000 MAB or 131,580 SFB |

= 0.61% of GDP (2018), or
= 1.82% of National budget (2018)

Total savings = **2.8 Mtoe** or **35% of buildings** and **12.5% of total final energy consumption**

Note: above calculations made on the rough magnitude estimate for moderate renovation measures 105eur/m2 based on publicly available data at this moment. In the final report these estimates going to be revised based on the new assumptions data collected.

Policy measures for promoting buildings renovation

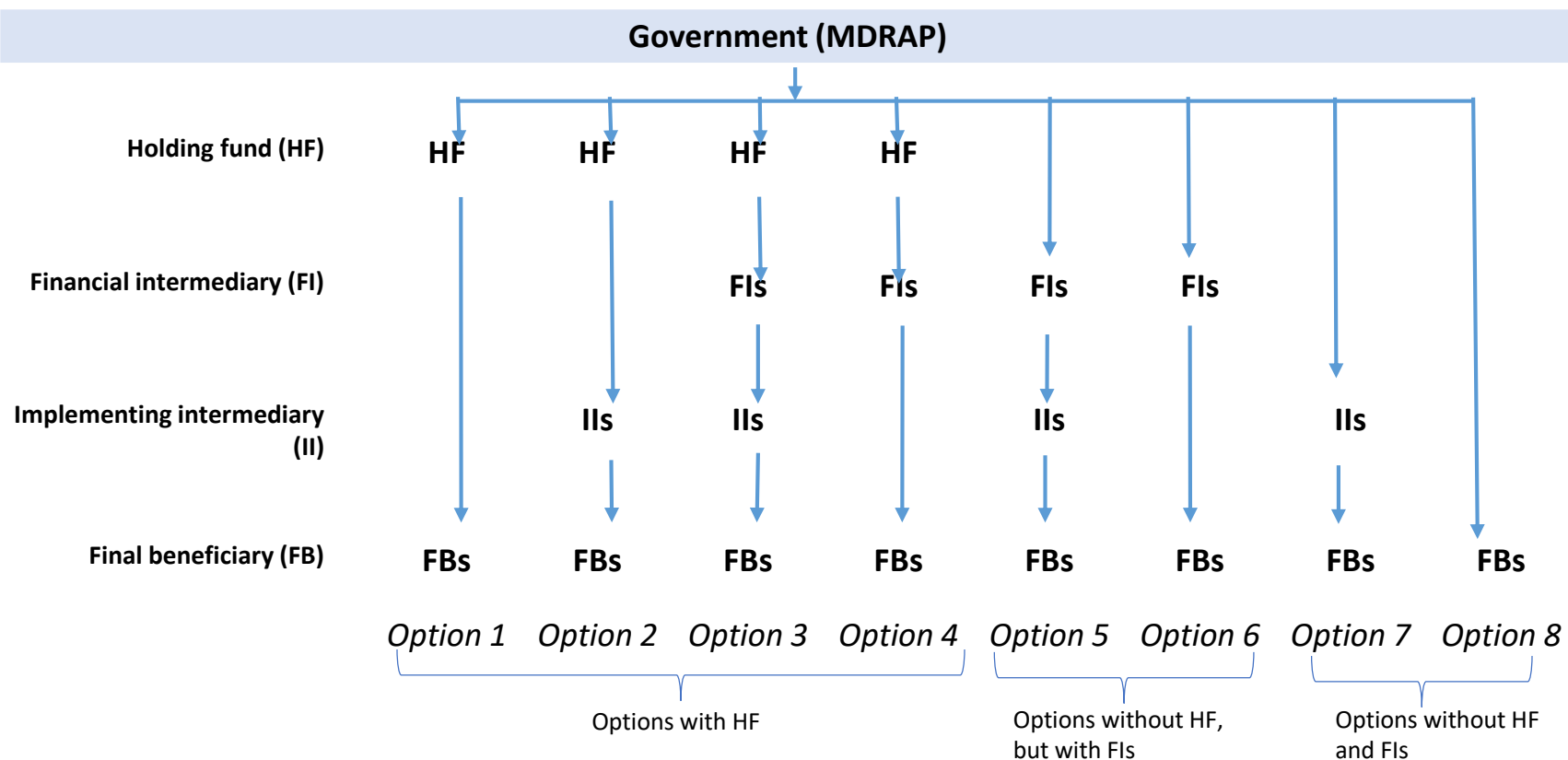


Public financial mechanisms institutional set-up analysis

| | |
|--|--|
| 1 level- Holding fund/National Agency (HF) | National or regional institution (e.g., Fund, Fund of Funds, Managing Authority, Development Bank, Agency,) which: <ul style="list-style-type: none">- attracts financial resources to Program from IFIs, EU, donors, government and other sources,- distributes financial resources to the beneficiaries directly or via financial intermediaries.- Executes monitoring & control, supports technical implementation (guides, standard docs., etc.) |
| 2 level- Financial intermediary (FI) | Commercial bank or other financial institution, which: <ul style="list-style-type: none">- distributes the HF investments to the Beneficiaries,- provides additional co-financing and/or pre-financing to the Beneficiaries. |
| 3 level- Implementing intermediary (II) | Municipalities, municipal enterprise (e.g., maintenance company, utility) or other*, which: <ul style="list-style-type: none">- represents final beneficiary (funding application, procurement, implementation control),- borrows on behalf of beneficiary and collects repayments through energy savings mechanism. |
| 4 level – Final beneficiary (FB) | HOAs, individual homeowners, public and commercial buildings owners, <ul style="list-style-type: none">- takes decision to invest into the EE measures ,- executes all/part of the implementation tasks if they are not performed by (or there is no) II,- repays their portion of the investment. |

* Energy traders that are obligated to achieve energy savings

Institutional set-up analysis (cont.)



Institutional set-up proposal for central government buildings (CGBs)

Government (MDRAP)

HF

FBs

Option 1

➤ National program will need an HF to take on day-to-day program functions on behalf of MDRAP, mobilize various funding sources for CGBs

➤ Program coordination unit (PCU) will be needed under MDRAP

Note: Above two points applicable to all institutional set-up proposals presented in the next slides

➤ HF implementation

➤ FBs will be selected central government buildings users which will manage renovation projects.

➤ HF perform financial management functions, including verification and control over CGBs projects

Institutional set-up proposal for municipal public buildings

Government (MDRAP)

HF

FBs

Option 1

- HF to take on day-to-day program functions on behalf of MDRAP and perform financial management functions, including verification and control over municipal projects implementation
- FBs (municipalities) could benefit from partial grant (to cover structural improvements, underheating) and use revolving fund to be repaid from energy cost savings.
- Government can create financial instrument (preferential loans, guarantees) within HF which will provide financing to municipalities or issues guarantees to commercial banks for lending to ESCOs/PPPs.
- Government can encourage private maintenance companies/ESCOs to take on a role but their balance sheets will be a limitation

Institutional set-up proposal for MABs

Government (MDRAP)

HF

IIs

FBs

Option 2

- HF to take on day-to-day program functions on behalf of MDRAP and perform financial management functions, including verification and control over MABs projects implementation managed by IIs (municipalities)
- IIs (municipalities) were shown to be needed and effective under current programs. For the next programming period IIs will remain necessary to attract co-financing for HOAs, and help manage renovations on behalf of the HOAs and/or apartment owners
- IIs in the future could be other professional entities (not necessarily municipalities) which could be authorized by apartment owner's to represent them in management of renovations process.
- There may be a need to facilitate creation of some well-capitalized municipal/private maintenance companies/enterprises to take on II role
- If there are strong IIs, do we always need HOAs?
- Some municipalities may be able/willing to borrow and collect repayments directly

Institutional set-up proposal for SFBs

Government (MDRAP)

↓
HF

↓
FIs

↓

FBs

Option 4

- Public funds can be channeled through FIs which express interest in lending to SFBs owners, proposed 20-30% grant and possible credit enhancement (guarantee scheme) could help lower perceived risks
- Verification and control over SFBs projects implementation can be performed by FIs which provide such services to the HF based on the agreed compensation.

Institutional set-up proposal for commercial buildings

Government (MDRAP)

HF

Fis

FBs

Option 4

- Renovation of commercial buildings can be facilitated through credit lines and commercial lending
- They can also be facilitated by enforcement of energy performance requirements implementation for the commercial building owners

Financial and grant options for strategy implementation

| Advantages | Weaknesses |
|---|---|
| Grant (100%) | |
| <ul style="list-style-type: none"> • Attractive to the building/apartment owners; • Simpler to administer than loan; | <ul style="list-style-type: none"> • Require sufficient public financial resources; • Reduces incentive to seek investments efficiency; |
| Loan + grant | |
| <ul style="list-style-type: none"> • Brings more discipline to the project and beneficiary; • Facilitates private financial sector participation; • Recycling loan repayments for the new projects; | <ul style="list-style-type: none"> • More complicated delivery mechanism than a grant; • Less attractive to the building/apartment owners than a grant; |
| Partially repayable grant (20-60%) | |
| <ul style="list-style-type: none"> • Brings more discipline to the project and beneficiary; • Recycling grant repayments to the new projects; • Delivery mechanism less complicated than loan; • More simple transition from current municipal programs (100% grant) or ROP (85% grant) because conditions still remain very attractive to building/apartment owners; | <ul style="list-style-type: none"> • Requires sufficient public financial resources for non-repayable part of the grant; • Need of specific programs for vulnerable groups; • Less attractive to the building/apartment owners than a grant; |

Financing and repayment options (illustrative)

| INVESTMENT PERIOD 2 years | | REPAYMENT PERIOD 10 years | | | | | | | | | |
|---|--|---------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| | | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 | Year 7 | Year 8 | Year 9 | Year 10 |
| Option 1 | Gov. grant 100 % | | | | | | | | | | |
| Building/apartment owner repays 40% in case own part comes from loan financing | | | | | | | | | | | |
| Option 2 | Gov. grant 60% | Owner own 40% | Owner 4%+int. | Owner 4%+int. | Owner 4%+int. | Owner 4%+int. | Owner 4%+int. | Owner 4%+int. | Owner 4%+int. | Owner 4%+int. | Owner 4%+int. |
| Building/apartment owner repays 40% repayable grant over 10 years | | | | | | | | | | | |
| Option 3 | Gov. grant 60%, repayable grant 40% | Owner 4% | Owner 4% | Owner 4% | Owner 4% | Owner 4% | Owner 4% | Owner 4% | Owner 4% | Owner 4% | Owner 4% |
| Reduce loan to be repaid | | | | | | | | | | | |
| Option 4 | Owners own financing or loan 100% | Gov. grant 30 % | Owner 7%+int rest | Owner 7%+int rest | Owner 7%+int rest | Owner 7%+int rest | Owner 7%+int rest | Owner 7%+int rest | Owner 7%+int rest | Owner 7%+int rest | Owner 7%+int rest |
| In case of the loan: Owner repays the remaining loan 70% plus interest | | | | | | | | | | | |

Note: Variations of the above options are also possible. Values in the options provided are for illustration purposes only.

Conclusion on financing and repayments

Central government buildings CGBs

- ✓ Option 1 (100% budget support) can be most suitable for CGBs as it is based on 100% grant option.
- ✓ If there are savings, government can reduce budget appropriations for the energy and maintenance costs for renovated buildings.

Municipal public buildings

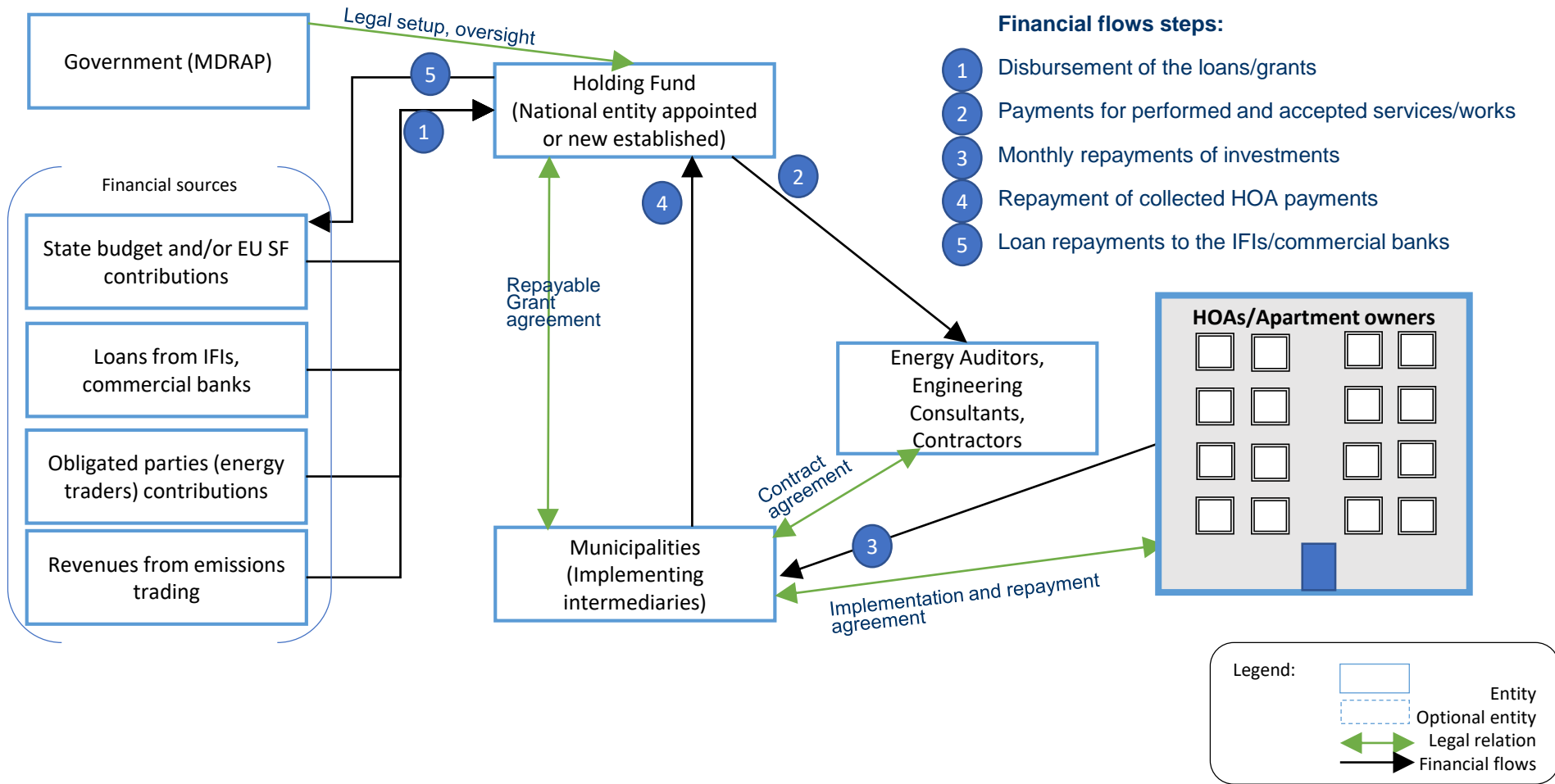
- ✓ Option with a revolving preferential loan and/or a partial grant/repayable grant.

Multi apartment buildings/Single family buildings

- ✓ Option with a revolving loan and a partial grant for example an initial maximum level of 80%, decreasing to 60% after 5 years, 40% after 10 years, etc. To be determined.
- ✓ Repaid amounts could be collected and used to repay IFIs, or could revolve under Program for future phases

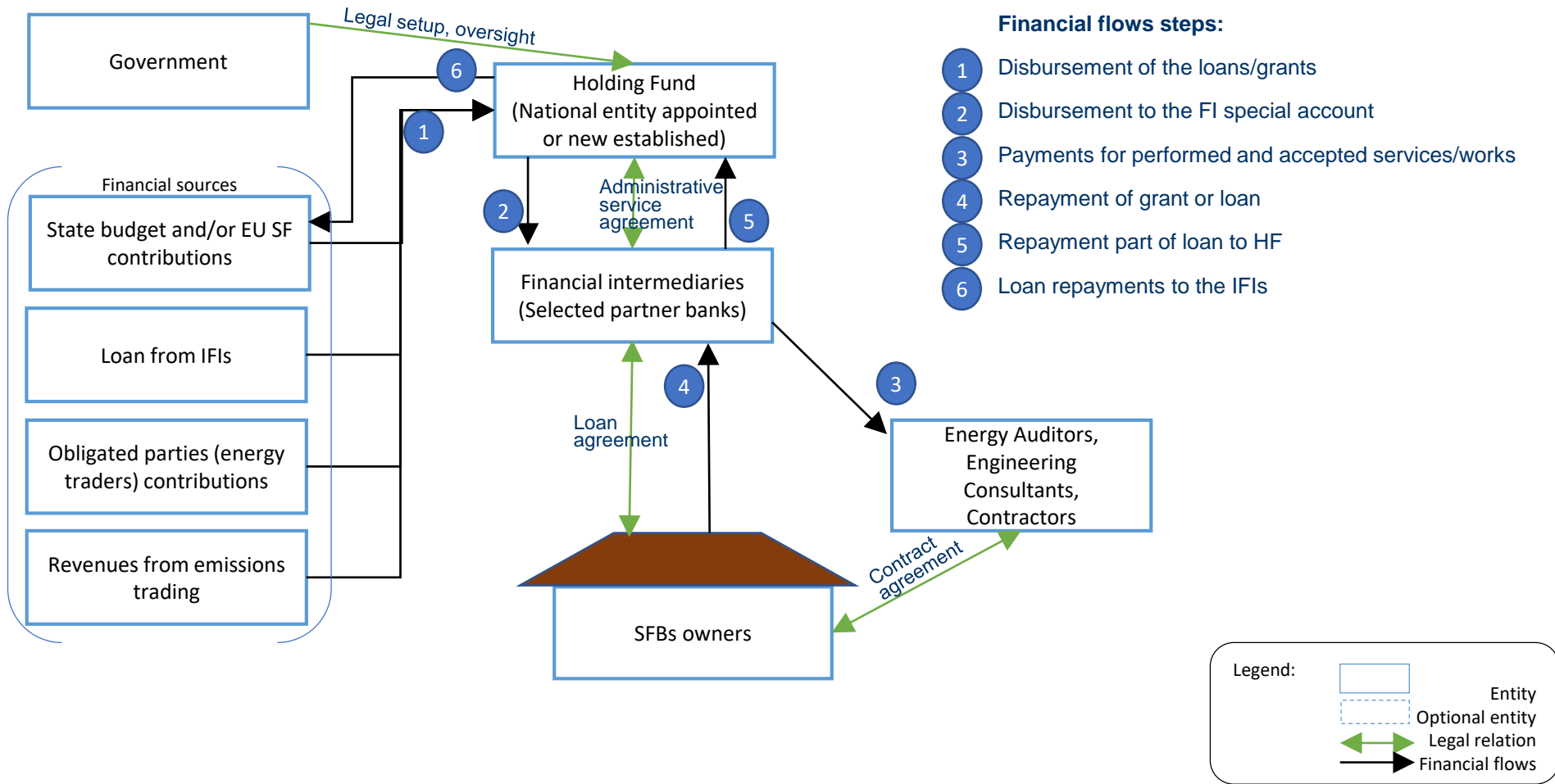
Preliminary financial flows example for MABs

Possible delivery mechanism based on the institution setup *option 3 for MABs*



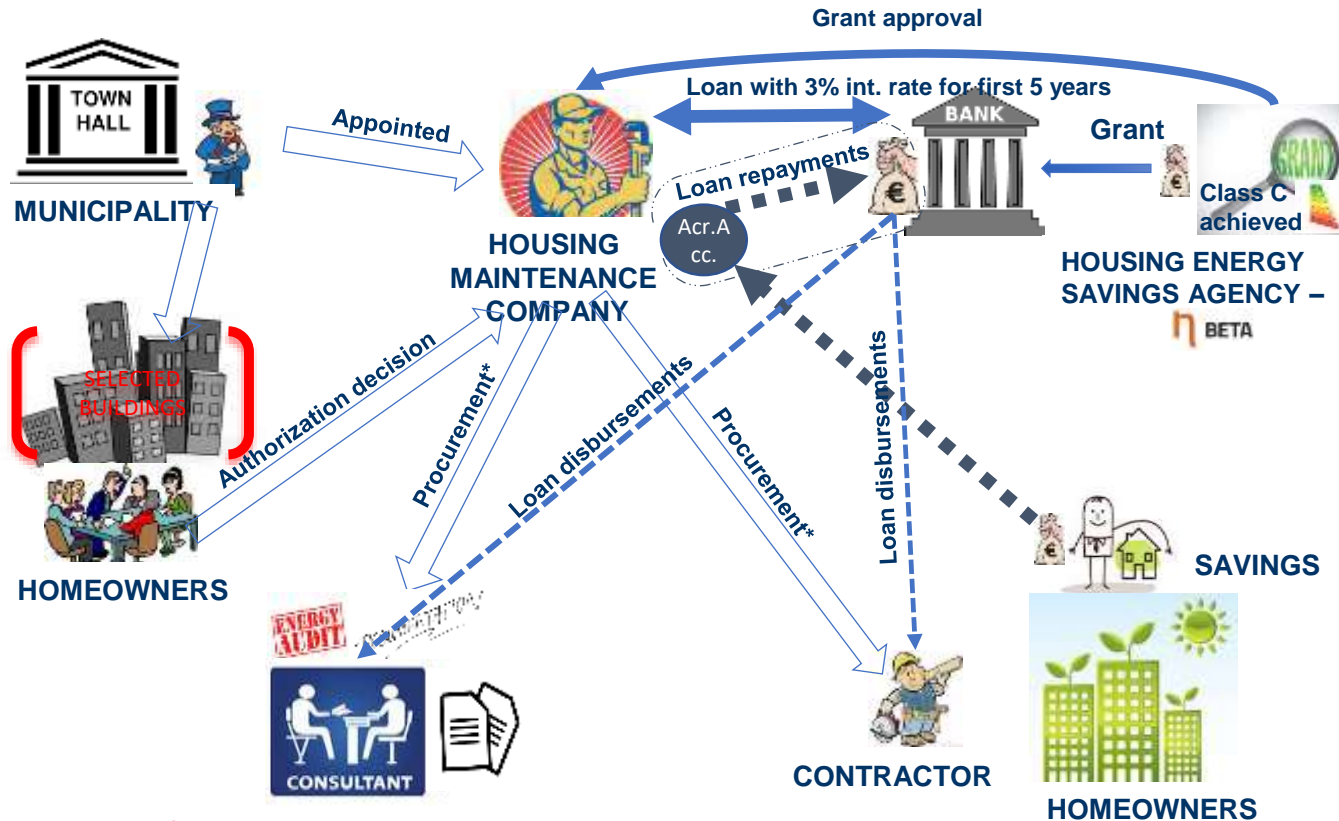
Preliminary financial flows example for SFBs

Possible delivery mechanism based on the institutional setup *options 2 and 3*



Financing opportunities for MABs in Lithuania

Delivery mechanism in **Lithuania** – FIs with IIs (maintenance companies)



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