





RELIABLE ENERGY LANDSCAPE PROJECT

MFK/MCC KOSOVO THRESHOLD PROGRAM

Energy Efficiency Coordination Group, Energy Community
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MFK/MCC KOSOVO THRESHOLD PROGRAM OVERVIEW

context | structure | reliability of electricity | tariffs
& energy intensity | EE policy

Kosovo is a young country, setting policy from scratch.

- Most policy changes have been focused on EU accession process
- Continued improvements in indicators like Freedom House, Doing Business, Transparency International

Kosovo's economic and social priorities

- Create jobs that can address bulging youth unemployment
- Bring women into the labor force
- Continue on the path towards EU integration

Targeted binding constraints for Threshold Program

- Unreliable Supply of Electricity
- Reality and Perception of Rule of Law



CONTEXT



Objectives of MCC

- Established in 2004 with focus on reducing poverty through economic growth
- Independent government agency overseen by Board of Directors, including four private members and chaired by Secretary of State



- Small agency with a focus on evidence-based decision making and locally-led solutions
- Only Low Income and Lower-Middle Income countries are eligible for MCC funding
- Performance and good governance is key
- Focus on private sector led growth and investment

MCC's Kosovo Threshold Program

- **On September 12 2017, US Government (MCC) and Kosovo Government signed a \$49 million Threshold Agreement**
- **Programs:**
 - Reliable Energy Landscape Project
 - Transparent and Accountable Governance Program
- **Reliable Energy Landscape Project**
 - The objective of the Reliable Energy Landscape Project is to reduce the current gap between energy demand and supply, by lowering energy use through piloting household investments in energy efficiency, switching to cost-effective non-electricity sources of heating, and reducing barriers to independent power producer ("**IPP**") entrants to the market.
- **The proposed Activities under this RELP Project include:**
 - Activity 1.1: Pilot Incentives for Household Investment in Energy Efficiency ("**PIE Activity**").
 - *Ensuring Equal Economic Opportunities in the Energy Sector Sub-Activity.*
 - Activity 1.2: District Heating Metering.
 - Activity 1.3: IPP Project Finance Facilitation.

Pilot Incentives
for Household
Investment in
Energy
Efficiency

District
Heating
Metering

IPP Project
Finance
Facilitation

Public Access
to Judicial
Information

Environmental
Data
Collection

Kosovo Open
Data
Challenge

Reliable Energy Landscape
Project

Transparent and
Accountable Governance
Project

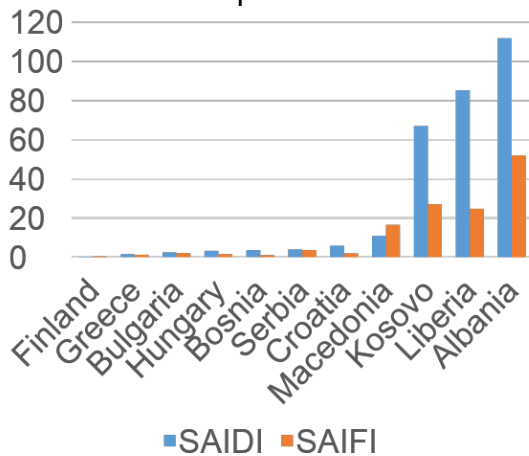
MCC Kosovo Threshold Program

Program Development Process





Duration and Frequency of outages for Kosovo and Comparators



RELIABILITY OF ELECTRICITY

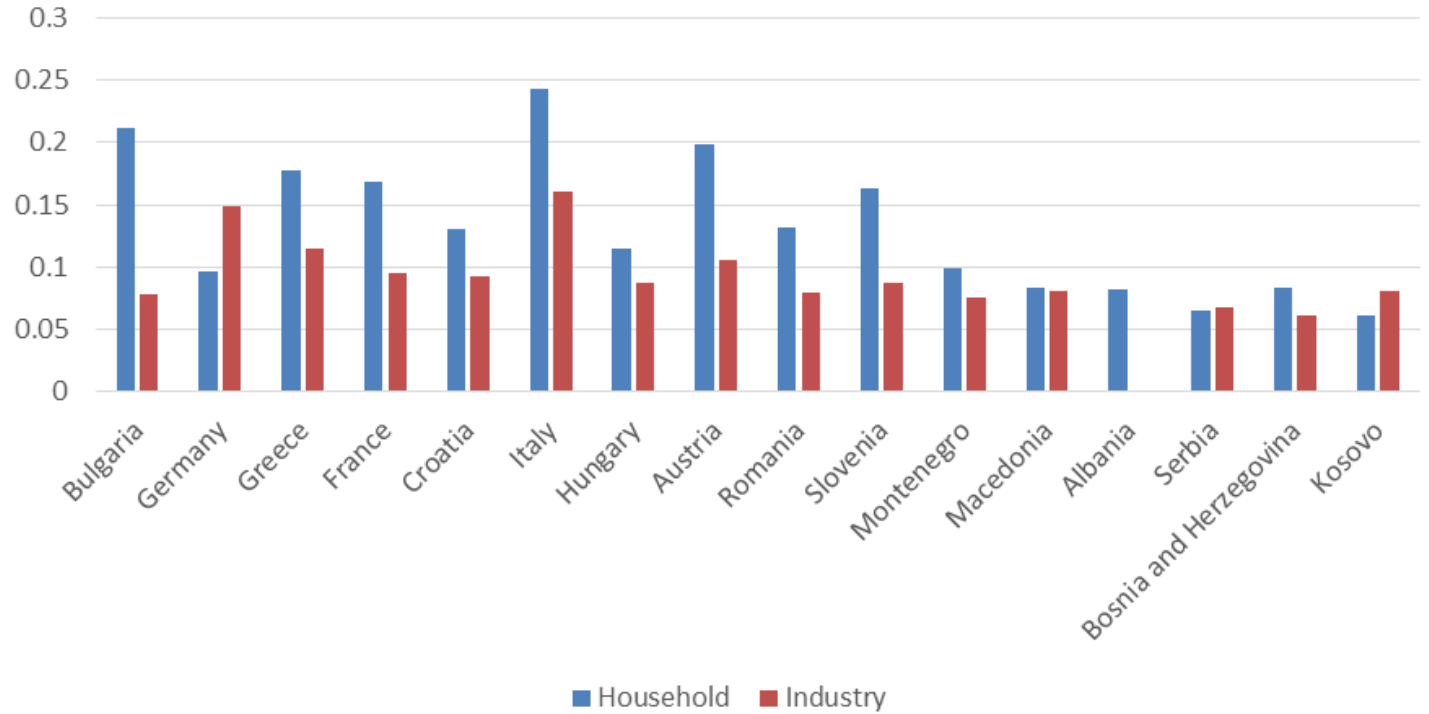
- Reported costs incurred by firms due to unreliable electricity are high
- Energy expenses and losses range from ~25% (as a % of turnover) for micro enterprises to ~3.6% for large firms
- Demand currently outstrips supply and will only get worse
- Can't directly import power
- Kosovo has agreed to decommission their oldest (and dirtiest) power plant



TARIFFS AND ENERGY INTENSITY

- Tariffs are comparable to region, even favorable, but total cost of energy is high
- Difficult for poor households to afford initial capital investments
- Unreliability of supply is a large cost for businesses

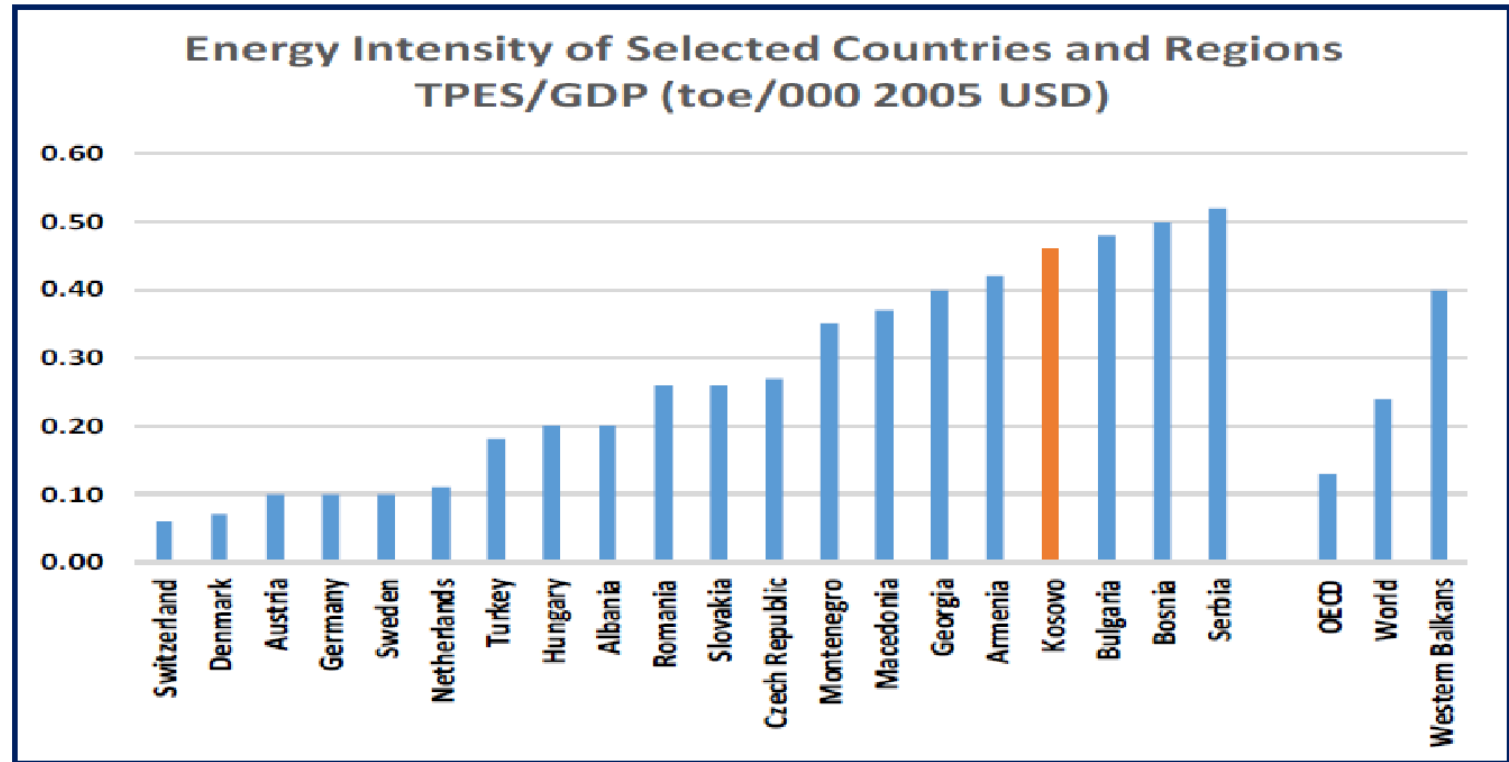
Average Tariffs (€/KWh)





TARIFFS AND ENERGY INTENSITY

- Demand exceeds supply, leading to increased costs due to imports, especially in winter
- The majority of energy demand is from households (60 – 70%)



Source: IEA 2015

ENERGY EFFICIENCY POLICY



- Adopted EU standards and regulations
- Established the Kosovo Energy Efficiency Agency
- Government and municipalities have adopted or are in the process of developing Energy Efficiency Action Plans
- With tariffs almost definitely increasing, real concern (government, utility and households) that more people will not be able to pay for energy
- Increased commercial losses for utility
- Increased subsidies from government to utility
- Increased deforestation and health concerns as people switch away from electricity
- Government would like to address energy efficiency concerns, but needs more information on cost-effective ways to do so



ENERGY EFFICIENCY POLICY

ENERGY EFFICIENCY & DISTRICT HEATING ACTIVITIES

early due diligence | market analysis | project
delivery | proposed design





PROBLEM DISCOVERED

- Consumption-Production Gap (-10%)
- Steady Household (2%) and Commercial (6%) Growth
- Kosovo Industry Electricity Demand Volatile, But Expected to Grow
- Net Installed Generation Fairly Flat
- Unreliability in Generation and Distribution Existing
- Imports Available But Expensive and Not Secure
- Load Shedding Existing (21 GWh)
- Very few alternatives to electric heating
- District heating efficient at source but inefficient at point of consumption
- Need to address incentives for change, education and sustainability (more than just infrastructure)



TARGETING HOUSEHOLDS

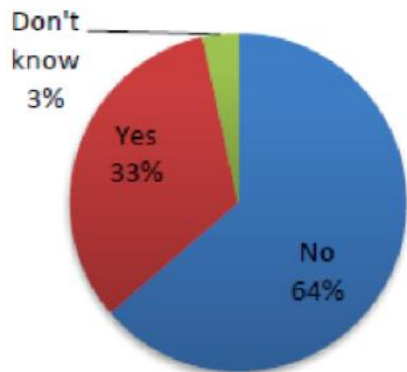
- Existing EE investments have been focused on for public infrastructure and, to lesser extent, SMEs and bankable individuals
- This activity looks to learn what works for low income households
- Will target learning to what will achieve government efficiency targets most cost-effectively:

Products, form and level of incentives, delivery mechanism, proper auditing, information ad marketing campaign



TARGETING HOUSEHOLDS

Roof insulation



Double windows



Insulation of walls





ACCESS TO ELECTRIC HEATING ALTERNATIVES

- **District Heating is one alternative to electricity, but currently inefficient**
 - Mandate for consumption-based billing, which is best practice to enhance efficiency
 - But sense prevails that will not be cost-effective to do so
 - → This will have implications for the extent of possible system expansion
- **Pilot methods to meter district heating in residential buildings**
 - Household level metering vs. building level metering
 - Financing methods
 - Education and awareness campaign



ACCESS TO ELECTRIC HEATING ALTERNATIVES

- **Combine pilot program with capacity building and planning**
 - Support regulator with design of consumption-based tariffs for district heating
 - Support district heating company to transition from spatial billing to consumption-based billing



ALIGNING SUPPLY AND DEMAND

Energy Efficiency Activity Outputs

- Strengthen demand for EE products
- Strengthened market for energy products and services
- Better informed consumers
- Government has path to reducing electricity consumption



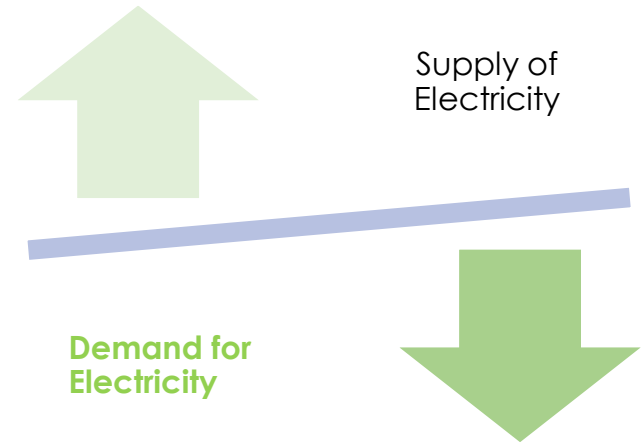
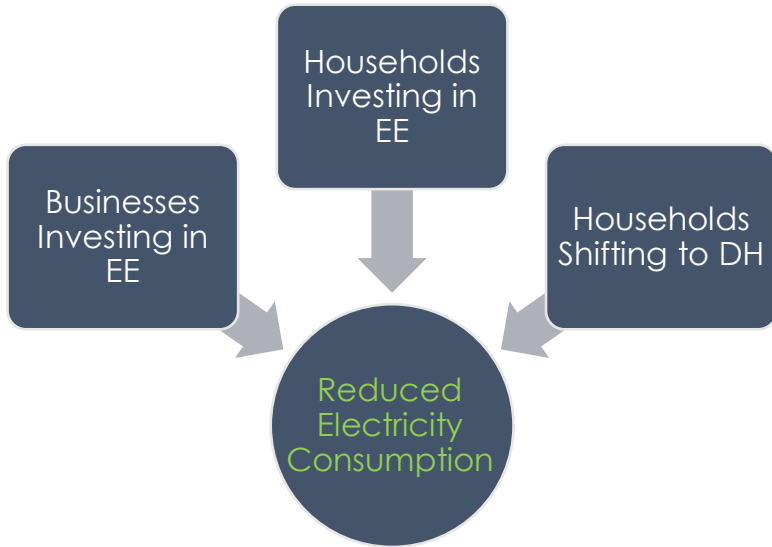
District Heating Activity Outputs

- Consumption-based tariffs designed
- Increased capacity of utility for consumption based billing
- Better informed consumers
- Decreased DH consumption and bills at HH level



Long Term Goals

- Reduced consumption (preserving comfort)
- Cost savings for households and businesses
- Reduced gap between supply and demand of electricity

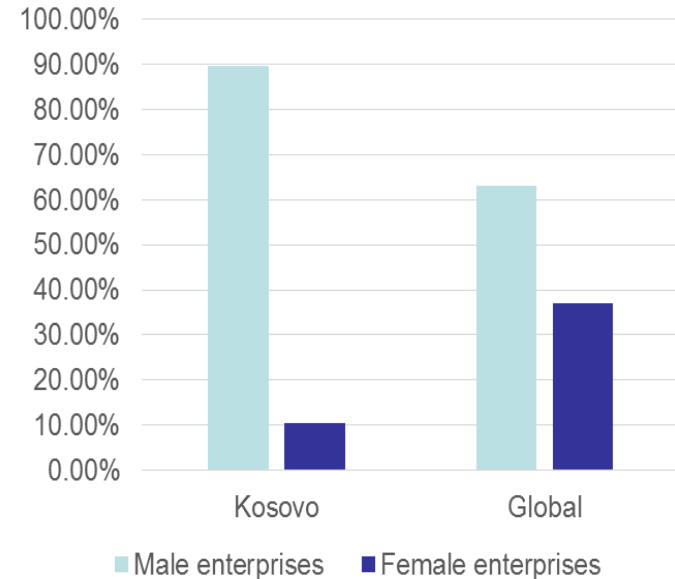




ENSURING BENEFITS FOR WOMEN & MINORITIES

Female enterprises are 10% of all Kosovo enterprises vs. 37% globally

- Women are the primary household managers of energy, but their needs or input may not be accounted for in sectoral policies or programs
- The energy sector is male-dominated (5.7% of KEDS employees are female)
- Women's businesses that do exist tend to be smaller, which report much higher costs of unreliable electricity
- MCC program will support women and minorities' equal opportunity to benefit from this project, as employees, entrepreneurs, and energy users





CONSULTATIONS

Energy Efficiency & District Heating Activities

early due diligence | **market analysis** | project delivery | proposed design



Government

Civil Society

Private Sector

Academia

Finance

Donors

Utilities

- Consumption-Production Gap

- Options for Increased Domestic Electricity Production
- Unreliable Generation and Distribution of Electricity
- Expensive and Insecure Electricity Imports
- Few Alternatives to Electric Heating
- Employment for Women and Socially Excluded Groups in the Energy Sector is Low



Need to construct new plants and decommission Kosovo A

Full utilization of Tx and improvements in Dx will be slow to come



Coal supplies are not secure

Building boom and increased diaspora investments



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Expanding existing capacity will be difficult

Financing and cost issues exist with REs



Inter-connection issues exist with large scale RE deployment

Kosovo e Re not for the short term



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Continued and unpredictable outages, though less frequent

Infrastructure problems on LV network



Poor availability of generators

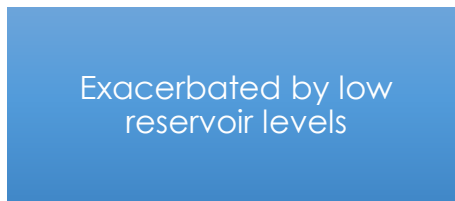
SMEs challenged by reliability issues and backup systems not wholly affordable



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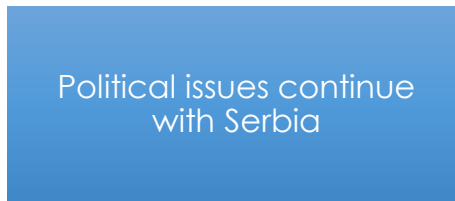
Exacerbated by previously stated problems



Exacerbated by low reservoir levels



Pricing pressures from growing regional demand



Political issues continue with Serbia



- Consumption-Production Gap
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- **Few Alternatives to Electric Heating**

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DH improvements lead to increased reliance,

though less than 5% of Kosovo can access DH



Issues with using wood and coal for heating

Cost of wood rapidly increasing

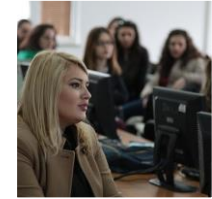


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Few women vs. men work in technical professions,

though many women-owned businesses eager to hire other women,



there is an extensive informal, home based network of businesswomen



training in small scale energy services could benefit socially excluded groups



ASSESSING FEASIBILITY ENERGY EFFICIENCY



Insulation



Window
Replacements



Weather
Sealing



Appliance
Replacements



Thermostatic
Control Valves

- Technical (Interventions)
- Social & Behavioral Change
- Targeting
- Legal & Regulatory Issues

ASSESSING FEASIBILITY ENERGY EFFICIENCY

“we're used to opening our windows to control the temperature”

“inefficient radiators can be used for drying clothes”

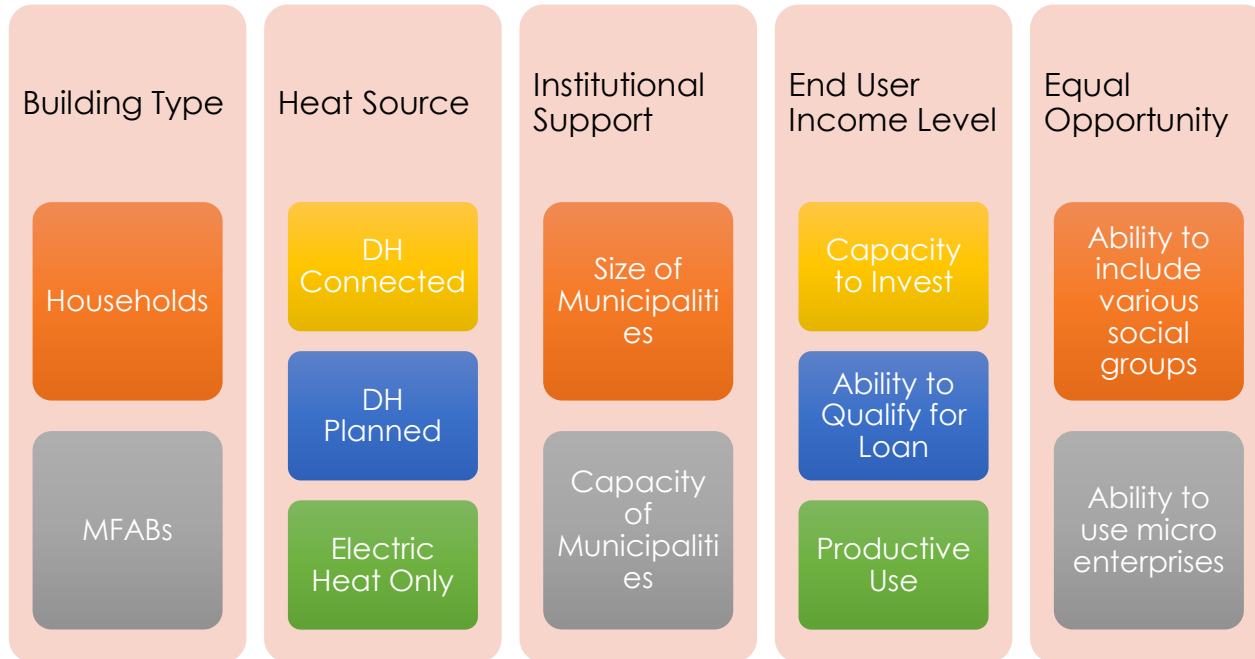
“I don't have enough money to make an energy efficiency investment”

“I'm not sure I would trust KESCO to provide me with energy efficiency services”

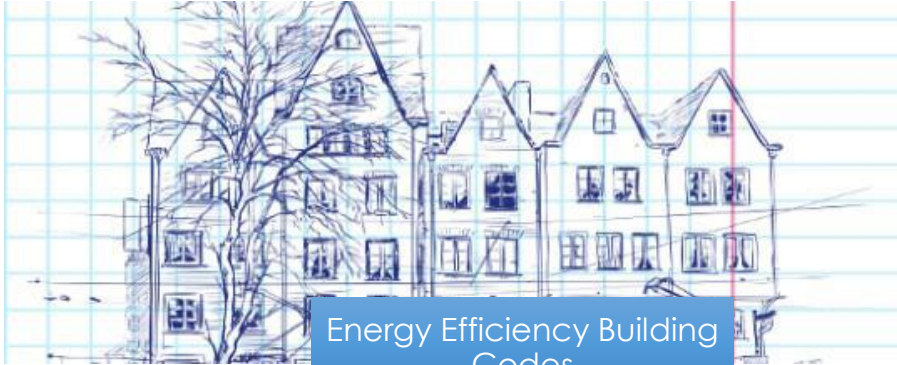
“we're used to heating one room only and don't want to pay more for the whole house”

- Technical (Interventions)
- **Social & Behavioral Change**
- Targeting
- Legal & Regulatory Issues

ASSESSING FEASIBILITY ENERGY EFFICIENCY



- Technical (Interventions)
- Social & Behavioral Change
- **Targeting**
- Legal & Regulatory Issues



Energy Efficiency Building Codes



Law on Condominiums and HOAs

ASSESSING FEASIBILITY ENERGY EFFICIENCY

- Technical (Interventions)
- Social & Behavioral Change
- Targeting
- Legal & Regulatory Issues

Cost Recovery

- Justification for sanctioning for non-payment at apartment level
- Equitability of billing through allocation of energy costs
- Manage social welfare customers appropriately

Service Delivery

- Improved targeting of leakages by analyzing heat balance
- Improved heat billing and associated dispute resolution
- Marketing of energy services at the apartment level

Energy Efficiency

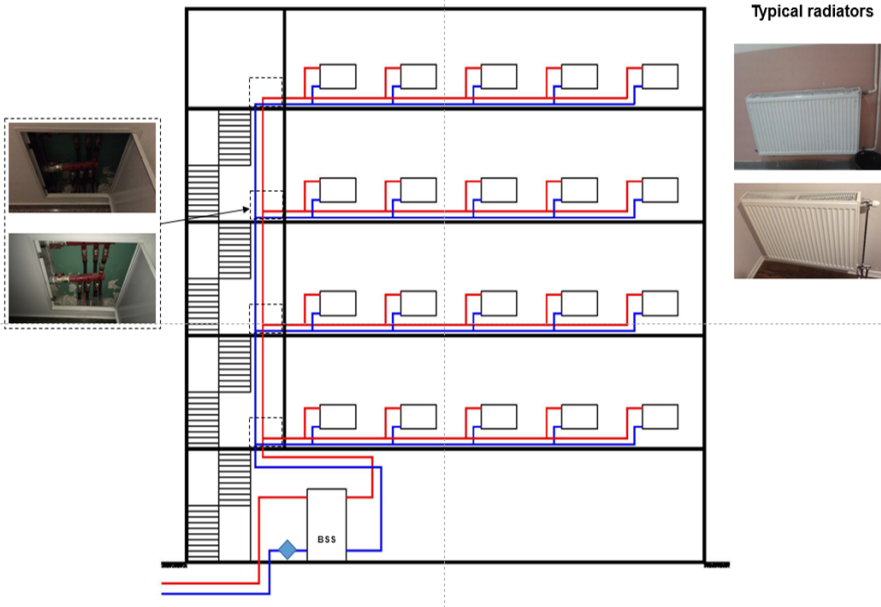
Synergy with thermostatic control valves

ASSESSING FEASIBILITY DISTRICT HEATING

- Project Drivers
- Heat Metering Baseline and Termokos Master Planning
- DH metering Implications in the Residential Sector

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ASSESSING FEASIBILITY DISTRICT HEATING

Approach to implementation of metering technology will vary by:



Metering by substation



Ability to use heat allocators

- Project Drivers
- Heat Metering Baseline and Termokos Master Planning
- DH metering Implications in the Residential Sector



NEXT STEPS

- ➔ • Follow Up Conversations to Discuss Partnerships and Integration
- ➔ • Further Engagement with Government of Kosovo
- ➔ • Finalization of Design
- ➔ • Preparation for Implementation



THANK YOU

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