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**Energy Investment Activity - EIA Project**

## **Draft Energy Efficiency Obligation Scheme Outline for Bosnia and Herzegovina**

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## 1. Introduction / Background

This document sets out the proposed overall structure for an Energy Efficiency Obligation (EEO) scheme in Bosnia and Herzegovina.

EEO schemes are policy instruments that require obligated parties (energy distributors and/or retail energy sales companies) to deliver a specified amount of energy savings at the customer end (for example, households or companies). The obligated parties fund energy efficiency measures for the end users to achieve the targeted amount of savings, and they recover the costs through tariffs/prices. The EEO mechanism defines the energy efficiency measures and activities that can be implemented to meet set targets; it also defines the procedures for monitoring, verification and reporting the achieved energy savings, which confirm that the activities actually took place. The EEO schemes are typically enforced by regulation that prescribes financial penalties for the parties that do not comply.

EEO schemes have proven to be an excellent mechanism to stimulate the economy of the countries that implement them. Through this instrument, energy efficiency measures are financed on a large scale through a domestic financing source that does not depend on donor funding or loans. This has far-reaching impact on job creation in the construction sector (companies implementing the works), the industrial sector (companies producing the equipment and materials needed), and the service sector (companies monitoring quality of service, issuing various building certificates, marketing, and the like). The EEO mechanism can help energize the BiH economy, and this is why it is viewed as a development mechanism.

As of 2012, the Energy Efficiency Directive (Directive 2012/27/EU) introduced legally binding measures for each EU Member State to increase energy efficiency, including the legal obligation to establish an Energy Efficiency Obligation scheme. This Directive became obligatory for the Energy Community (EnC) countries on October 16, 2015, including Bosnia and Herzegovina. The decision stipulates that the EEO mechanism should start as of January 1, 2017, and that Contracting Parties must notify the Commission as to what policy measures they plan to adopt by October 15, 2017. The EE Directive requires all EnC Countries to set a savings target for an EEO model of at least 0.5% in 2017 and 2018, and 0.7% in 2019 and 2020 of final energy sales every year. In the EU, out of 28 Member States, 16 have already implemented EEO schemes or plan to do so.

Bosnia and Herzegovina is required to develop the EEO model and include these provisions in the existing laws or develop new laws, as well as develop the necessary regulations and processes in accordance with the competencies of relevant institutions. Usually, the target has to be achieved over a certain period of time (e.g., four years, as prescribed by the EE Directive). This policy instrument has been in place in various EU countries for some time (first introduced in 1994 in the UK), and there is also significant experience with EEOs in the U.S. and Australia. The results have been impressive with large savings being achieved at a very low cost.

## 2. Savings Target and Obligation Period

The size and type of the energy savings target as well as the length of the obligation period are key parameters that define the EEO mechanism.

### Savings Target Metric

The savings target metric can have important implications for the implementation of the EEO mechanism. The approach most used is to define the target in lifetime energy savings of particular EE measures. What this means is that the target relates not just to the energy savings made in the year the energy efficiency measures are implemented but also includes savings after the first year of implementation until the measures reach the end of their lifetimes. For example, an insulation measure typically has a 30-year lifetime. Within a lifetime energy savings metric, the savings achieved over the 30-year lifetime would count towards the target.

An alternative is to set the target in annual energy savings, only allowing the savings of the first year to be counted. This penalizes energy efficiency measures with longer lifetimes (because only the savings of the first year can be counted) and benefits those with short lifetimes. The savings target metric should be revisited when any adjusted<sup>1</sup> EEO model is being prepared in order to make sure measures with the biggest impact are targeted.

The table below shows the relative advantages and disadvantages of the different options:

	<b>Advantages</b>	<b>Disadvantages</b>
Lifetime savings	<ul style="list-style-type: none"> <li>• Encourages implementation of long-term measures</li> <li>• Puts all energy efficiency measures on a level playing field</li> </ul>	<ul style="list-style-type: none"> <li>• Slightly complex to understand for stakeholders</li> <li>• Adds to complexity</li> </ul>
Annual year savings	<ul style="list-style-type: none"> <li>• Easier to understand for stakeholders</li> </ul>	<ul style="list-style-type: none"> <li>• Discourages implementation of long-term measures</li> </ul>

Further, the savings target may be set in reduction of energy use or carbon emissions. The idea behind this is to encourage energy savings in buildings that have particularly high energy use or use fuels that are particularly carbon intensive. Lifetime and annual savings metrics can be combined with either option (energy savings or carbon savings).

	<b>Advantages</b>	<b>Disadvantages</b>
Energy savings	<ul style="list-style-type: none"> <li>• Focuses effort on energy savings</li> <li>• Simplicity</li> </ul>	<ul style="list-style-type: none"> <li>• Does not account for different carbon intensities of fuels</li> </ul>

<sup>1</sup> By the adjusted model we mean the model that supersedes the current model after its obligation period passes.

Carbon savings

- Focuses efforts on the most carbon intensive fuels
- Adds to complexity
- Potentially more difficult to understand than an energy savings metric

**Recommendation:** USAID EIA highly recommends using a combination of lifetime savings and energy savings as the energy savings target metric.

- Using lifetime savings is more sensible as it encourages investment in energy efficiency measures that deliver savings over longer periods of time. In this approach measures are rewarded for the amount of savings they can achieve over their lifetime rather than using an artificial cut-off timescale.
- Using energy savings rather than carbon savings is proposed to focus on the homes that have a high energy use compared to the total heated/cooled area of the building in square meters. This is calculated by converting the annual consumption of all fuels to kWh and then dividing by the gross square meters of the building. In this approach, the energy consumption of homes can be compared to other similar building types, and buildings that have the highest energy consumption relative to the square meters can be targeted.

### Savings Target Size

The size of the energy savings target determines the overall effectiveness of an EEO model. If the target size is too low, very little energy savings over what would be attained in any event will be delivered, and there is a risk that the obligated parties would simply be subsidizing those parties who would have installed energy efficiency measures even in the absence of the EEO scheme. If the target is too high, obligated parties will:

- a. Incur higher costs, which will be passed on to consumers, and
- b. Struggle to meet a target, which would undermine the credibility of the effectiveness of an EEO model.

In addition, the energy efficiency materials and services supply chain needs time to develop and may not be able to provide sufficient energy efficiency measures to meet a very high target. Before setting the target, an analysis of supply chain capacity and its geographical coverage of the country should be carried out. When defining the savings target size, the requirements set by the Energy Community need to be taken into account, together with the Energy Efficiency Action Plans that every country has an obligation to develop.

	<b>Advantages</b>	<b>Disadvantages</b>
Big target from the beginning	<ul style="list-style-type: none"><li>• Encourages high implementation of energy efficiency</li></ul>	<ul style="list-style-type: none"><li>• If no previous experience with delivering energy efficiency at scale, target could be missed</li><li>• Risk of undermining credibility of mechanism if target is missed</li><li>• Potentially high cost to consumers</li></ul>

	<b>Advantages</b>	<b>Disadvantages</b>
		<ul style="list-style-type: none"> <li>• A high target is likely to be achieved by importing equipment and services rather than developing the domestic industry</li> </ul>
Small target from the beginning	<ul style="list-style-type: none"> <li>• Target is likely to be met</li> <li>• Cost to consumers small</li> </ul>	<ul style="list-style-type: none"> <li>• Leads to low implementation of energy efficiency measures</li> </ul>
Phase-in of target (first small then gradually bigger over the years)	<ul style="list-style-type: none"> <li>• Allows supply chain to develop</li> </ul>	<ul style="list-style-type: none"> <li>• Appropriate pace of phase-in may be difficult to determine</li> <li>• Risk of ‘watering down’ targets over time, i.e., reducing rather than increasing savings targets</li> </ul>

**Recommendation for savings target size.** USAID EIA recommends the below approach:

- 1) Determine the current implementation rate of energy efficiency measures (e.g., number of homes insulated per year)
- 2) Assess the capacity of the supply chain to deliver energy savings to each sector considered
- 3) Model what the energy savings of the current implementation rate are
- 4) Set the target at a level exceeding the current implementation rate by a good margin
- 5) Increase the target over time in line with the implementation rate achieved

In addition, the target size needs to link to the Energy Efficiency Action Plans (EEAPs), which is for now adopted only in Republika Srpska. In this way, the EEO mechanism will be integrated into the wider energy efficiency action plan and strategy of the Entities and BiH.

### Obligation Period

The obligation period defines over how many years the target has to be achieved by the obligated parties. In theory the obligation period could be very short (1 year) or very long (say, 10 years). In practice, most countries have opted for obligation periods of around 3-4 years. The EnC has adopted at least a four-year term for the Energy Community countries, starting January 1, 2017 to December 31, 2020.

The table below summarizes the advantages and disadvantages of the different options:

	<b>Advantages</b>	<b>Disadvantages</b>
Short obligation period	<ul style="list-style-type: none"> <li>• Requires immediate action</li> </ul>	<ul style="list-style-type: none"> <li>• Does not provide long-term stability for the market</li> </ul>

	Advantages	Disadvantages
Long obligation period	<ul style="list-style-type: none"> <li>Provides long-term stability and allows supply chain to develop</li> </ul>	<ul style="list-style-type: none"> <li>Risk of missing the target since supply chain needs time to develop</li> <li>Lack of flexibility regarding modifications of the EEOs</li> </ul>
Medium obligation period	<ul style="list-style-type: none"> <li>Provides sufficient time for the supply chain to develop</li> </ul>	<ul style="list-style-type: none"> <li>Only provides medium-term stability</li> </ul>

**Recommendation:** USAID EIA recommends an obligation period of 4 years because:

- a. This provides sufficient stability for the energy efficiency market, and
- b. Allows for modifications at the end of each phase based on the lessons learned.

### 3. Savings Target-Setting Body

The target-setting body decides on the size of the target. There are different options as to which institution this should be. In most countries, the target-setting body is the ministry responsible for energy; in some cases, it is the energy regulator.

The table below summarizes the advantages and disadvantages of the different options:

	Advantages	Disadvantages
Government/Ministry	<ul style="list-style-type: none"> <li>Political mandate to set targets enables ministry to increase target more easily</li> </ul>	<ul style="list-style-type: none"> <li>More sensitive to politics</li> </ul>
Regulator	<ul style="list-style-type: none"> <li>Not so sensitive to politics</li> </ul>	<ul style="list-style-type: none"> <li>Lack of political mandate limits scope to increase target</li> </ul>

**Recommendation:** USAID EIA recommends that the target-setting body should be the Federation Ministry of Energy, Mining and Industry, the RS Ministry of Industry, Energy and Mining, and the Department for Communal Affairs of Brcko Distrikt. These institutions should adopt the targets with the approval of their respective Governments. The Entity ministries and the Department for Communal Affairs of Brcko should coordinate with MOFTER to make sure the Energy Community obligations are met. The ministries should be given a clear mandate in the relevant energy market regulation to set targets for energy savings. When deciding on the target size and other features of the EEO model, the governments should work very closely with the competent regulator. In addition, the relevant energy efficiency strategies and action plans should be taken into account.

## 4. Administering body

The administering body drafts detailed rules that need to be followed and also monitors and enforces compliance. This should be an institution that has experience in energy market regulation and compliance. The advantages and disadvantages of the options are:

	<b>Advantages</b>	<b>Disadvantages</b>
Ministry	<ul style="list-style-type: none"><li>• Enforcement can be aligned easily with policy goals</li></ul>	<ul style="list-style-type: none"><li>• Lack of experience with enforcement and regulation</li><li>• Potentially perceived as politically biased</li></ul>
Regulator	<ul style="list-style-type: none"><li>• Experience with enforcement and regulation</li><li>• Independent</li></ul>	<ul style="list-style-type: none"><li>• Risk that enforcement is out of sync with policy goals</li></ul>

**Recommendation:** USAID EIA recommends that the administering bodies should be the regulators responsible for energy regulation in Bosnia and Herzegovina - the State Electricity Regulatory Commission, the Regulatory Commission for Energy in Federation of Bosnia and Herzegovina and the Regulatory Commission for Energy of Republic of Srpska, according to their respective jurisdictions.



## 5. Fuel Coverage

An EEO scheme may be established to cover only one fuel type or may cover a range of different fuels (e.g., electricity, natural gas, LPG, heating oil, transport fuels and district heating). The decision on fuel coverage will depend on the overall policy objectives that the scheme is designed to achieve. In addition, the choice of fuels to be covered should be made on the basis of estimates of energy efficiency potential for the different fuels.

Fuel coverage can relate to:

- a. The obligated parties (e.g., natural gas suppliers), or
- b. The fuel types that can be saved in order to achieve the target (e.g., electricity).

Often the obligated parties are suppliers or distributors of a specific fuel; however, more savings can be achieved across a wider range of fuels.

	<b>Advantages</b>	<b>Disadvantages</b>
Single fuel	<ul style="list-style-type: none"><li>• Simplicity</li></ul>	<ul style="list-style-type: none"><li>• Narrow coverage of energy users</li></ul>
Multiple fuels	<ul style="list-style-type: none"><li>• Wide coverage of energy users</li></ul>	<ul style="list-style-type: none"><li>• Complexity</li></ul>

**Recommendation:** USAID EIA recommends that the EEO model focus initially on one fuel only – electricity. This recommendation is made at this time to not distort the energy market, resulting in double obligations being placed on a small number of customers, while leaving out the others. This decision can be revisited when an adjusted EEO model is being prepared.

Electricity is a fuel that is well regulated already and is, therefore, the recommended starting point. Other fuels used for residential heating in BiH are mostly coal, wood, and district heating; fuel oil and natural gas are used in small quantities. Apart from electricity the only fuel source that could be efficiently regulated would be natural gas. Regulation of coal and wood used in the residential sector is unlikely at this time. In these circumstances, if an obligation was placed on natural gas, it would increase the price of natural gas further and could motivate customers to switch to coal or wood. In later phases of the EEO, when regulation of coal and wood use is in place, other fuels can be added to the scheme if needed.

### Energy Savings

When calculating the energy savings that the obligated parties are required to achieve, energy savings from all fuel types should be taken into account. This means that if electricity suppliers are the obligated parties, they should be able to invest in energy efficiency measures that save other fuel sources and not only electricity. This gives the obligated parties more flexibility in meeting their targets and allows the EEO model to be optimized towards the implementation of

the energy efficiency measures that have the biggest economic impact as will be discussed later under section 8, Eligible measures. The methods of reporting and verifying the savings made, including possible simplification of these procedures using a catalog of savings are described in later sections of this document.

## 6. Obligated Parties

In theory, there are at least three options for the identification of obligated parties:

- a. Energy suppliers, or
- b. Energy distributors.
- c. Third parties (such as a public trust).

There are EEO models in operation that fall into each of the three categories; since they perform well, it seems there is no single best practice. In Bosnia and Herzegovina there are no such third parties, so they will therefore not be analyzed further.

The major difference between placing the obligation on energy suppliers or distributors is the financing model:

- Obligations on energy distributors are defined through a fixed monetary amount per kWh of energy distributed. The fee is calculated by monetizing the amount of energy savings that have to be achieved in the given year, i.e., how much money needs to be invested into energy efficiency improvements in order to achieve the needed energy savings. This monetary amount is then divided by the total kWh distributed in that year, and a price per kWh is set. The obligation is then passed through the network fee.
- Obligations on energy suppliers are defined through the amount of energy savings to be achieved each year in kWh. In general, the monetary value or fee is not prescribed for the suppliers; rather, they develop it themselves and include it in their electricity price. This allows the suppliers to develop the most efficient plan for reaching the required energy savings for the lowest cost and in turn keep their electricity prices competitive.

Some countries have opted to put the obligation on energy suppliers and regulate the price until the EEO model develops, and other conditions are in place before deregulating the price, such as an open energy market.

	<b>Advantages</b>	<b>Disadvantages</b>
Electricity suppliers	<ul style="list-style-type: none"> <li>• Incentive to keep implementation costs as low as possible (This incentive would function in a fully open electricity market where all customers participate)</li> </ul>	<ul style="list-style-type: none"> <li>• Usually there is no natural incentive to save energy. However, in BiH, household electricity prices are very low, and suppliers may be able to supply saved electricity to other</li> </ul>

	<b>Advantages</b>	<b>Disadvantages</b>
	<ul style="list-style-type: none"> <li>• Simpler functioning of EEO schemes is possible once the electricity market fully develops in the future</li> </ul>	<ul style="list-style-type: none"> <li>• customers or export to where prices are higher</li> <li>• Limited human resources that deal with procurement of materials and services, contracting with vendors, and administration</li> <li>• Procedures for smaller suppliers have to be adopted in order to exclude them from the EEO obligation</li> </ul>
Electricity distributors	<ul style="list-style-type: none"> <li>• Natural interest in saving energy (grid stability and lower investment costs)</li> <li>• Have organized procurement and contracting departments for materials and services as its part of their everyday business</li> <li>• Have experience in supervising works</li> </ul>	<ul style="list-style-type: none"> <li>• The fixed EEO fee does not incentivize keeping implementation costs as low as possible (defining pricing ranges would be necessary)</li> <li>• Deregulating the pricing of EEO schemes in the future to make their implementation more efficient would be difficult as distributors will remain fully regulated</li> </ul>

**Recommendation:** USAID EIA recommends that electricity distributors be obligated.

## 7. Sectoral Coverage

When designing EEO models, the sectoral coverage needs to be defined, clearly indicating whether the obligated parties can achieve savings in all sectors or only in some sectors. The options include:

- a. All sectors,
- b. The residential sector,
- c. The commercial sector,
- d. The industry sector,
- e. The public sector,
- f. The transport sector, and
- g. Combinations of the above

The advantages and disadvantages of those options are summarized below:

	<b>Advantages</b>	<b>Disadvantages</b>
All sectors	<ul style="list-style-type: none"> <li>• Flexibility for obligated parties</li> </ul>	<ul style="list-style-type: none"> <li>• More complex than focusing on one or two sectors only</li> </ul>
Residential sector	<ul style="list-style-type: none"> <li>• Large potential for simple and replicable energy efficiency measures</li> <li>• Since these consumers pay for the most part, they should benefit the most from the EE measures</li> <li>• Simple monitoring and verification procedures can be implemented</li> </ul>	<ul style="list-style-type: none"> <li>• Large number of actors involved</li> </ul>
Commercial sector	<ul style="list-style-type: none"> <li>• Smaller number of actors involved<sup>2</sup></li> </ul>	<ul style="list-style-type: none"> <li>• Technical measures potentially quite complex</li> <li>• Payback periods requested short</li> </ul>
Industry sector	<ul style="list-style-type: none"> <li>• Smaller number of actors involved</li> </ul>	<ul style="list-style-type: none"> <li>• Technical measures very complex</li> <li>• Payback periods requested short</li> </ul>
Public sector	<ul style="list-style-type: none"> <li>• Smaller number of actors involved</li> </ul>	<ul style="list-style-type: none"> <li>• Technical measures potentially more complex</li> <li>• Donor money and soft loans available</li> </ul>
Transport sector	<ul style="list-style-type: none"> <li>• Emission reductions in sector usually do not contribute as much as other sectors</li> </ul>	<ul style="list-style-type: none"> <li>• Technical measures potentially quite complex</li> <li>• Limited potential for replicable energy efficiency measures</li> </ul>
Combinations	<ul style="list-style-type: none"> <li>• Flexibility for obligated parties</li> </ul>	<ul style="list-style-type: none"> <li>• More complex if focus on more than two sectors</li> </ul>

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<sup>2</sup> The renovation of one public building, such as a municipality building, costs about the same as renovating 10-20 homes.

**Recommendation:** USAID EIA recommends that Bosnia and Herzegovina initially focus on the residential sector, as this sector provides significant potential for replicable, low-cost energy efficiency measures. Also, domestic buildings are major contributors to energy demand in Bosnia – about 52% as shown in Figure 1. In addition, vulnerable customer programs can be incorporated into the EEO scheme to help vulnerable customers reduce their energy usage. Most of the EEO models in Europe have delivered the majority of their energy savings in the residential sector (the main exception is Denmark, where there is a strong focus on industry).

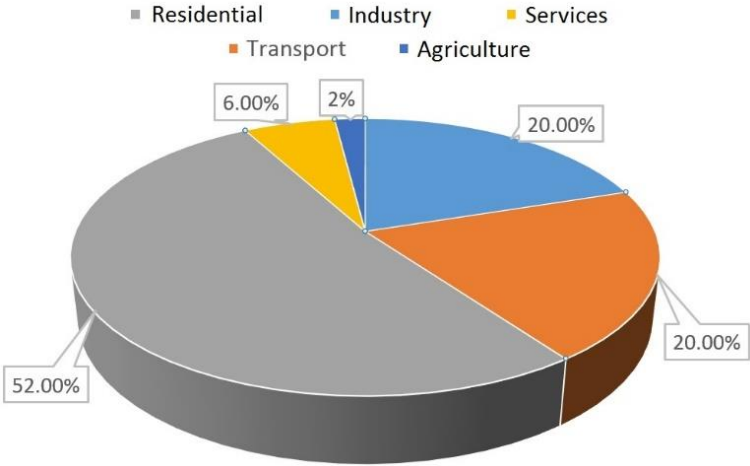


Figure 1. Final energy consumption in Bosnia and Herzegovina in 2005.

### 8. Eligible Measures

There are three types of potential eligible measures:

- 1) Standardizable measures,
- 2) Customized measures, and
- 3) Contributions to other energy efficiency policy programs.

Standardizable measures include measures that are easily replicable and achieve similar amounts of energy savings in each case. A good example is facade insulation or window replacement. Customized measures are usually more complex, one-off energy efficiency measures such as upgrading refrigeration systems in the commercial sector. Some EEO models allow for contributions to energy efficiency programs instead of carrying out technical energy efficiency measures (e.g., in France); however, in this case, the contributions to the programs generate a specified amount of energy savings that can be counted towards the target.

The advantages and disadvantages of the three options are presented below:

	<b>Advantages</b>	<b>Disadvantages</b>
Standardized measures	<ul style="list-style-type: none"> <li>• Easily replicable</li> <li>• Simplicity</li> <li>• Reliability of savings</li> <li>• Low administrative burden</li> </ul>	<ul style="list-style-type: none"> <li>• Exclude more ambitious measures</li> <li>• Limit flexibility and scope</li> </ul>
Customized measures	<ul style="list-style-type: none"> <li>• Allow for more ambitious and complex measures</li> </ul>	<ul style="list-style-type: none"> <li>• Savings calculations more complex</li> <li>• Higher administrative burden</li> </ul>
Programs	<ul style="list-style-type: none"> <li>• Flexibility</li> <li>• Potentially support additional policy goals (e.g. fuel poverty reduction)</li> </ul>	<ul style="list-style-type: none"> <li>• Complexity</li> <li>• Relies on programs to be effective</li> <li>• Risk of double counting</li> </ul>

**Recommendation:** USAID EIA recommends the use of only standardized measures, as they reduce the administrative burden and keep the scheme manageable. At a later stage, customized measures and/or programs can be added when the EEO concept matures and is accepted by the public. The measures specified should take into account the Energy Efficiency Action Plans, as the EEO mechanism should be integrated into the wider energy efficiency strategy.

## 9. Catalog of Savings from Measures

For the standardized measures, a catalog of energy savings for each measure is required so the obligated parties know how much savings they can achieve from each energy efficiency measure. Also, such a catalog provides the regulator with a tool that can be used to calculate the savings that have been achieved.

For each measure a clear description of the following elements is usually included in a catalog of measures:

- Eligible end-use application;
- Brief description of the measure, its applicability, and any relevant technical standards;
- Requirements concerning installation of a measure;
- Measure lifetime; and
- Deemed energy saving (e.g., per unit, per square meter).

The alternative to creating a catalog of measures is to have no catalog and carry out the energy efficiency savings calculations for each measure implemented.

The advantages and disadvantages of the two options are presented in the table below:

	<b>Advantages</b>	<b>Disadvantages</b>
Catalog of measures	<ul style="list-style-type: none"> <li>• Provides clarity and transparency</li> <li>• Removes the risk of investment in energy efficiency measures</li> </ul>	<ul style="list-style-type: none"> <li>• Effort required to establish catalog</li> </ul>
No catalog	<ul style="list-style-type: none"> <li>• No effort required to establish catalog</li> </ul>	<ul style="list-style-type: none"> <li>• Significant efforts required for energy savings calculations</li> <li>• Lack of clarity and transparency</li> </ul>

**Recommendation:** USAID EIA recommends that a catalog of measures be developed. Such catalog would provide clarity and transparency as it defines the types of buildings, types of EE measures, and expected energy savings. When this is defined, energy audits are not required to be made for each building considered for implementation of EE measures; however, a building is chosen from the catalog based on its characteristics. This approach is not 100% accurate, but statistically it's very close, and money and time are not spent on energy audits, verification and paperwork. Detailed analysis to verify savings is made randomly on a sample of buildings but not on each and every one.

Experience shows that all of the successful EEO models use a catalog of measures. The catalog of measures should be established by local energy efficiency experts working with experts who have expertise in catalogs of measures from existing EEOs. The deemed savings should be used on the best available evidence (ideally random samples where the impact on energy use has been monitored over a period of time). The GIZ Energy Efficiency Project in BiH is working to develop a Residential Building Typology for BiH, which can serve as the above-mentioned catalog of energy efficiency measures.

In order to set the EEO scheme in accordance the current EE regulatory framework in BiH (entity level), it is recommended to link the EEO subsidy award criteria with the existing Energy Performance Certificate scheme. This means that the subsidy level to be awarded should be closely linked to the energy class of the building after the implementation of the measures.

## 10. Contractors

Some EEO models allow direct contracts between contractors and the obligated parties or via an online platform similar to the stock market, where providers of energy savings sell certified savings to the obligated parties. In theory, this reduces the overall cost of the EEO mechanism; however, this also adds a level of complexity to EEO schemes.

**Recommendation:** USAID EIA recommends that obligated parties be allowed to use contractors for delivering the obligations, but only by direct B2B contracts, rather than an open trading platform. This recommendation is based on evidence from existing schemes that trading arrangements do not increase the effectiveness of the EEO models or significantly lower the cost.

## 11. Reporting

In all existing EEO models, the obligated parties report on a regular basis to the administrator of the scheme with regard to their implementation progress. This information is useful for various purposes, including:

- a. Monitoring compliance (see next section on monitoring and verification), and
- b. Enabling all stakeholders to track progress towards the target.

Reporting is usually done on the number and types of measures installed, the date of installation, address and name of the beneficiary.

**Recommendation:** USAID EIA recommends that the obligated parties report on a monthly basis to the scheme administrator on the number and types of measures installed, the date of installation, address and name of the beneficiaries. Reporting is an essential element of all EEO schemes, since it enables the administrator to cross-check and verify that the measures have been carried out, as well as track progress towards the target. It is also recommended that the administrator publishes reports on progress at regular intervals (e.g., quarterly) so all stakeholders can track progress towards the target. As in other countries, a web-based system should be developed that allows the obligated parties to report and the scheme administrator to monitor and cross-check in a fully transparent way.

## 12. Monitoring and Verification

Without a robust monitoring and verification process it is impossible for the administrator of the EEO scheme to understand whether or not an obligation has been delivered in line with the EEO Scheme's requirements. There are a number of rules regarding monitoring and verification that need to be developed, including rules on:

- Desk-based validation of energy efficiency measures installed
- On-site inspections of a sample of the measures installed
- Quality control of the measures installed

**Recommendation:** USAID EIA recommends implementation of a clear monitoring and verification requirements to ensure the EEO is delivering as expected. All successful EEO models feature robust monitoring and verification regimes. It should be taken into account that a Monitoring and Verification Platform (MVP) developed by GIZ is under implementation in other Energy Community countries. It is an innovative web platform, based on a bottom-up methodology for calculation of energy savings. Moreover, the design IT solution is a perfect tool for the EnC participating countries, since it allows monitoring the progress in policy implementation at all levels. The data structure of the tool allows any number of policy plans and programs to be monitored in one place. Although originally designed to be the tool monitoring the National Energy Efficiency Action Plan implementation, it is also applicable for monitoring policy plans and programs at lower levels, such as municipalities, regions and counties, depending on the administrative structure of the country and need for monitoring. For this reason, we recommend the MVP tool to be used for the monitoring and verification of EEO



implementation, which would establish a direct link with the action plans on the entity and state levels

### 13. Compliance

Compliance is an important part of EEO model that is often overlooked. Without robust compliance procedures, EEO mechanisms are less effective. Part of the compliance requirements needs to be developed in the detailed EE measures implementation rules (e.g., which measures can be installed, when do they have to be completed, which savings are counted). Another part of compliance relates to ensuring that the obligated parties meet their targets. This can be done by a monitoring scheme (See Section 12, *supra*).

There need to be penalties in place that are a sufficient deterrent applicable in case of non-compliance. The penalties need to be specified and set forth clearly. The penalties should be significantly higher than the cost of delivering the target; otherwise, the obligated parties may choose to simply pay the penalty rather than deliver energy efficiency measures.

**Recommendation:** USAID EIA recommends that penalties be implemented that are clear, transparent and sufficiently high in order to ensure that the obligations are complied with. The level of penalties could depend on the amount of energy savings not delivered in order to meet the target, i.e., the difference between the target and the actual energy savings. For each kWh of energy savings not delivered, a penalty could apply. The level of the penalty needs to be significantly higher than the implementation costs of the energy efficiency measures. The penalty revenues should be allocated to the existing entity Energy Efficiency Funds in proportion to regions from which they were collected and used to finance energy efficiency measures within the EE funds programs.

### 14. Running Costs of EEO Models

It is generally assumed that the costs of energy efficiency measures undertaken as a result of obligations will be passed through in energy prices, whether explicitly in regulated distribution charges or in supplier costs. A cost recovery element can only be applied where the obliged parties operate in a regulated market, i.e., where regulated distribution tariffs are applicable. In the context of energy saving obligations, cost recovery is a process whereby an energy distributor is able to recover in full or partially through a tariff (network charge) the costs of implementing certain energy saving actions beyond the consumers' meters. In a liberalized market, suppliers should be able to add energy efficiency costs to their prices, i.e., via a pass-through of eligible costs as may be stipulated in regulations, but without a fixed and guaranteed cost recovery. Suppliers therefore need to properly size their pricing policies and optimize the funds raised to achieve the necessary energy savings at the lowest possible cost.

There is an emerging body of evidence on the cost of EEO schemes. In four countries, the costs have been as follows:

- France: 0.4 Eurocent / kWh<sup>3</sup>
- Denmark: 0.45 Eurocent / kWh<sup>4</sup>
- Italy: 1.7 Eurocent / kWh<sup>5</sup>
- UK: 0.7 Eurocent / kWh<sup>6</sup>

The cost of EEO mechanisms are significantly below the price of energy which makes them highly cost-effective.

The administrative costs depend very much on the complexity of the scheme. For example, in the UK the administrative costs for the Carbon Emissions Reduction Target, an EEO scheme that ran from 2008 to 2012, was estimated to be around £1.4 million per year which is equivalent to about 0.1% of the costs to the energy suppliers to implement the obligation.<sup>7</sup> The succeeding scheme, the Energy Company Obligation (ECO) was estimated to lead to administrative costs of around £2.5 million per year plus £1.3 million for setting up the administrative systems as a one-off cost. Together, this is equivalent to about 0.2% of the cost to the energy companies.<sup>8</sup> Administrative costs elsewhere are of a similar range: Reviewing existing EEO models in Europe the European Commission estimates that overall administrative costs are around 0.002 Eurocent per kWh of energy saved.<sup>9</sup> Assuming a cost to the energy companies of 0.4-1.7 Eurocent per kWh of energy saved<sup>10</sup> this is equivalent to about 1-5% of the total cost of EEO schemes.

## 15. Alternative Measures to EEO Schemes

According to the Energy Efficiency Directive, Energy Community Contracting Parties may opt to take other policy measures to achieve energy savings among final customers. This may be in combination with the energy efficiency obligation scheme, or as an alternative to it. It is important to note that the prescribed energy savings must be achieved. The policy measures may include, but are not restricted to, the following policy measures or combinations thereof:

- a) Energy or CO<sub>2</sub> taxes that have the effect of reducing end-use energy consumption;
- b) Financing schemes and instruments or fiscal incentives that lead to the application of energy-efficient technology or techniques and have the effect of reducing end-use energy consumption;
- c) Regulations or voluntary agreements that lead to the application of energy-efficient technology or techniques and have the effect of reducing end-use energy consumption;

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<sup>3</sup> Lees, E., "Energy efficiency obligations – the EU experience," European Council for an Energy Efficient Economy (2012).

<sup>4</sup> *Ibid.*

<sup>5</sup> *Ibid.*

<sup>6</sup> Rosenow, J., Galvin, R., "Evaluating the Evaluations: evidence from energy efficiency programmes in Germany and the UK," *Energy & Buildings*, 62, (2013), pp. 450–458.

<sup>7</sup> DEFRA, Explanatory Memorandum on the Electricity and Gas (Carbon Emissions Reduction) Order, London (2008).

<sup>8</sup> DECC, Final Stage Impact Assessment for the Green Deal and Energy Company Obligation, London (2012).

<sup>9</sup> European Commission, Commission Staff Working Paper Impact Assessment accompanying the document Directive of the European Parliament and of the Council on energy efficiency and amending and subsequently repealing Directives 2004/8/EC and 2006/32/EC {COM(2011) 370 final} {SEC(2011) 780 final}, (2011).

<sup>10</sup> Lees, E., *op cit.*

- d) Standards and norms that aim at improving the energy efficiency of products and services, including buildings and vehicles, except where these are mandatory and applicable in Member States under European Union law;
- e) Energy labelling schemes, with the exception of those that are mandatory and applicable in the Member States under European Union law;
- f) Training and education, including energy advisory programs, that lead to the application of energy-efficient technology or techniques and have the effect of reducing end-use energy consumption.

Energy Efficiency Obligation Schemes may be combined with national energy efficiency programs, where Contracting Parties shall explain how an equivalent level of savings, and monitoring and verification is achieved.

## 16. Conclusions

There are many design features that should be considered when setting up EEOs. In the case of BiH, USAID EIA recommends the following:

- **Target metric:** use a combination of lifetime and carbon savings (or fuel-weighted energy savings, based on carbon content) to encourage investment in long-term measures and energy savings with a high carbon intensity
- **Target size:** carry out an assessment of the current supply chain and phase in the target
- **Obligation period:** set the target over a four-year period to provide stability and allow for sufficient flexibility to modify the EEO model after that period
- **Target setting body:** allocate the target setting to government (Federal Ministry of Energy, Mining and Industry and the RS Ministry of Industry, Energy and Mining, and the Department for Communal Affairs of Brcko District), rather than the regulator, acknowledging that the regulator has no political mandate
- **Administering body:** require the regulators (State Electricity Regulatory Commission, the Regulatory Commission for Energy in the Federation of Bosnia and Herzegovina and the Regulatory Commission for Energy of Republic of Srpska) to administer the scheme in line with their jurisdictions as they have experience in implementing regulation
- **Fuel coverage:** initially, only oblige electricity companies but allow them to achieve their targets through energy savings across all fuels
- **Obligated parties:** oblige the electricity distributors
- **Sectoral coverage:** start focusing on the residential sector, as this sector provides a significant potential for replicable low-cost energy efficiency measures and is a major contributor to energy demand in Bosnia and Herzegovina
- **Eligible measures:** use only standardized measures as they reduce the administrative burden and keep the scheme manageable
- **Catalog of measures:** establish a catalog of measures with the help of a local energy consultant with deemed savings for a range of measures
- **Contractors:** that obligated parties should be allowed to use contractors for delivering the obligations
- **Reporting:** establish clear reporting requirements for obligated parties
- **Monitoring and verification:** implement robust monitoring and verification requirements
- **Compliance:** put in place penalties that are significantly higher than the cost of delivering the target