



Applying EU Legislation for Energy Efficiency Measures at Local Level in South-East Europe

NALAS Task Force on Energy Efficiency



Network of Associations of Local Authorities of South-East Europe



APPLYING EU LEGISLATION FOR ENERGY EFFICIENCY MEASURES AT LOCAL LEVEL IN SOUTH-EAST EUROPE

NALAS Task Force on Energy Efficiency

Report

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1. INTRODUCTION

The NALAS Task force on Energy Efficiency organised a workshop in Application of EU Legislation for Energy Efficiency Measures at Local Level in Pristina, 30th November – 1st December 2015. The objective of the workshop was to contribute to the exchange of experiences and to steer the discussion at regional level in South East Europe on adaptation, adoption and application of EU legislation concerning energy and energy efficiency.

In order to gain in-depth knowledge about the actual situation in NALAS operational region, a survey was conducted amongst its members – the local government associations (LGAs) in advance to collect relevant information about the practice of implementation of energy efficiency legislation and the cooperation of national and local levels in the course of implementation.

The questions in the survey have been structured according to key topics of implementation in the EU directive on energy efficiency (2012/27/EU) as one of the most important legal frameworks for energy efficiency implementation in the EU which is highly relevant also for the implementation of local governments at the same time. Due to the fact that the members of NALAS include

associations from EU and other countries, the survey asked for implementation of EU directives, additional relevant agreements with the European Commission (Energy Community Treaty, 2005) or alternative implementation due to similar national laws. The answers were used as input for the workshop to steer the discussions and formulate recommendations, and also to provide rationale for further initiatives of the Task Force and the LGAs at regional and national level. The returned surveys are documented in a separate document.

The external international expertise for the workshop has been funded by the Austrian Development Agency (ADA) through the BACID grant scheme (Building Administrative Capacities in Danube Region & Western Balkans), managed by the Austrian Association of Cities and Towns (AACT) and KDZ Center for Public Administration Research.

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2. THE ENERGY EFFICIENCY DIRECTIVE

2.1 Key factors of the energy efficiency directive (EED)

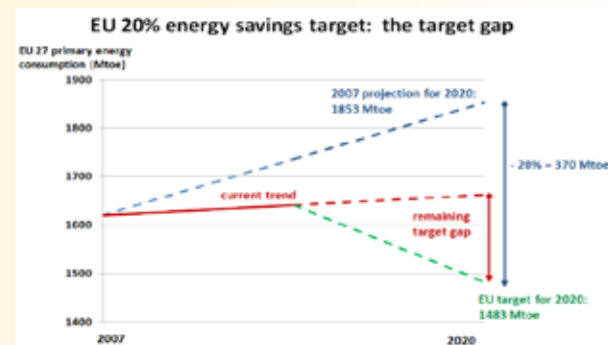
The Energy Efficiency Directive (EED, 2012/27/EU) covers all end-use sectors except transport. It also includes improving energy efficiency in the energy transformation sector. Following its approval (October 25, 2012), Member States had to transpose it into national law until 5 June 2014.

As quantitative objectives, the following targets have been leading the formulation of EED in 2012:

- ▶ 20% EU energy savings until 2020 (max. 1483 Mtoe primary energy or 1086 Mtoe final energy consumption), plus indicative national targets
- ▶ national binding target to deliver 1.5% cumulative annual energy end-use savings

In terms of objectives and measures to be set, the EED is a kind of re-cast of the energy service directive published in 2006 (Energy end-use efficiency and energy services directive – ESD, 2006/32/EC), but the new EED went beyond that because the development trend (2006-2012) after issuing the first directive on energy efficiency did not meet the targets for 2020.

Figure 1: Background for the new EED – the target gap



Source: Coalition for Energy Savings, EU Energy Efficiency Directive, Guidebook for Strong Implementation, 2013

Most important features of the new EED comprise sectoral measures, indicative national targets on energy efficiency, general measures for the promotion of energy efficiency and monitoring and reporting requirements.

Figure 2: Important features of the new EED



Source: eceee, Maze Guide #6 EED, 2013

In the recent past, EED had to be implemented stepwise and implementation is still ongoing in EU member countries. With start of 2016, the final steps of implementation have to be started concerning CHP, audits, metering and billing.

Figure 3: Implementation of EED – timeline



Source: Coalition for Energy Savings, EU Energy Efficiency Directive, Guidebook for Strong Implementation, 2013

In June 2016, the period for the first review on exemption as well as the first period concerning the monitoring and implementation of energy efficiency obligations in place will end. Regular reporting from member states will provide with information on the ongoing process.

2.2 Importance of implementation of Energy Efficiency at local level

It seems clear that local authorities have an important role in the implementation of energy efficiency in general. Even though indicative targets and binding obligations in the EED are laid down for central governments, there are a number of references to the regional and local level.

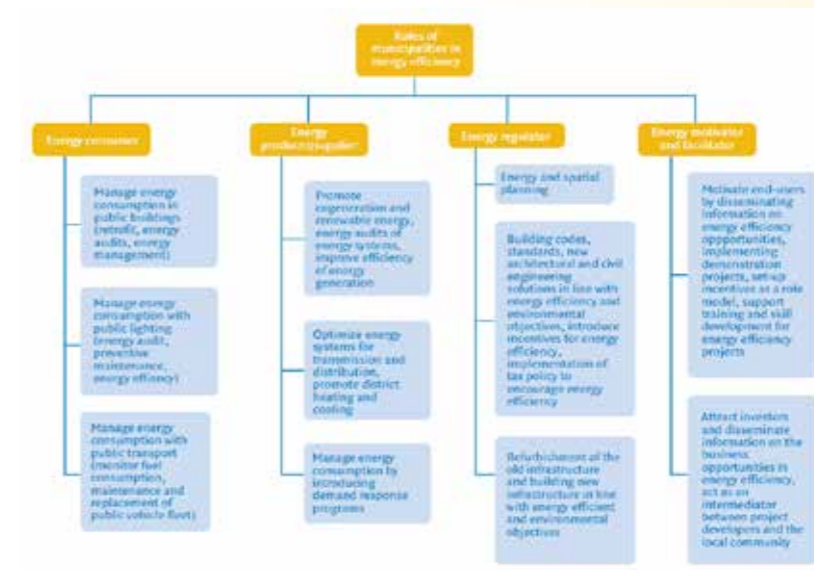
The possibilities and options how local authorities are able to respond to the new requirements are dependent on or at least heavily influenced by:

- ▶ the interaction between policy levels, powers of LG according to national laws
- ▶ financial situation and human resources of LGs
- ▶ awareness and know-how of LGs

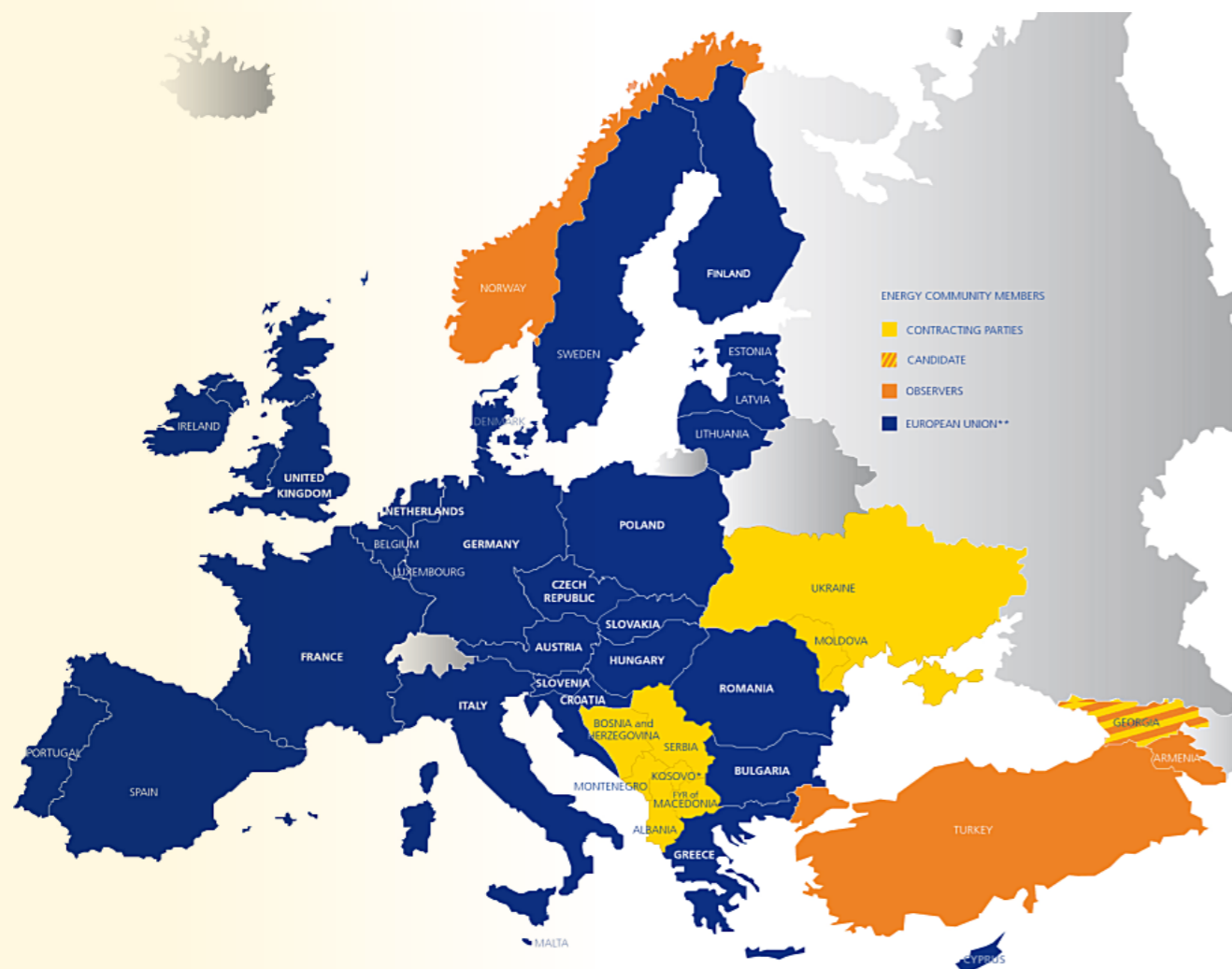
There are different roles local level governments have to play when implementing the EED. These comprise the role of an energy consumer (e.g. for public buildings, or street lighting), the role of an energy producer or supplier (e.g. as an owner of a district heating network), the role of an energy regulator when the municipality is defining land use plans, building codes, renovation strategies etc. and the role of an energy motivator and facilitator mainly as contact of private persons or companies.

According to these roles and the overall economic and legal decision making situation of the city or municipality, room for acting differs from one local government to the other.

Figure 4: Role of the local level in the implementation of EED



Source: European Urban Knowledge Network, Energy Efficient Cities, Joint Action for the Built Environment, 2013

Figure 5: Energy Community Treaty – members, candidates and observers in 2016

Source: Energy Community (https://www.energy-community.org/portal/page/portal/ENC_HOME/MEMBERS)

From the actual point of view of implementation, four key topics can be identified for the implementation of the EU-Directive on Energy Efficiency at local level

- ▶ Building renovation and exemplary role of public buildings
- ▶ Procurement of energy efficient products and services
- ▶ Obligation schemes on energy efficiency
- ▶ Efficiency of heating and cooling networks/CHP

These key topics have been discussed at the workshop in Pristina with the present members of NALAS Task Force on Energy Efficiency. Additionally, survey results from all NALAS member associations were collected and thus complement the discussion at the workshop.

2.3 Legal Obligation on Energy Efficiency in Framework of Energy Community Treaty (EnCT)

With the adaptation of the Energy Community Treaty (signed in 2005), the Contracting Parties (Albania, Bulgaria, Bosnia and Herzegovina, Croatia, Macedonia, Montenegro, Romania, Serbia and Kosovo*) made legally binding commitments to adopt core EU energy legislation.

Meanwhile Bulgaria and Romania (2007) as well as Croatia (2013) entered the European Union, Moldova signed the Energy Community Treaty in 2010.

After entry into force, the Energy Community acquis has been extended to include new energy policy areas as well as to replace older acts by newer, revised ones¹.

¹ https://www.energy-community.org/portal/page/portal/ENC_HOME/ENERGY_COMMUNITY/Legal/EU_Legislation

*"This designation is without prejudice to positions on status, and is in line with UNSC 1244 and the ICJ Opinion on the Kosovo declaration of independence."

The Acquis Communautaire actually in force covers:

- ▶ Directive 2012/27/EU on energy efficiency, amending Directives 2009/125/EC and 2010/30/EU and repealing Directives 2004/8/EC and 2006/32/EC, Published on 16 Oct 2015, General Implementation 15 Oct 2017.
- ▶ Directive 2010/30/EU on the indication by labelling and standard product information of the consumption of energy and other resources by energy-related products, Published on 19 May 2010 General Implementation 31 Dec 2011
- ▶ Directive 2010/31/EU on the energy performance of buildings Published on 18 May 2010, General Implementation 30 Sep 2012.
- ▶ Directive 2006/32/EC of 5 April 2006 on energy end-use efficiency and energy services and repealing Council Directive 93/76/EEC Published on 05 Apr 2006 with General Implementation 31 Dec 2011.

The energy efficiency acquis Directive 2006/32/EC strives for the adoption of an indicative energy savings target of 9% for the ninth year of application of this Directive, and the development of National Energy Efficiency Action Plans (NEEAPs). Directive 2010/31/EU provides the legal framework for setting minimum energy performance requirements for new and existing buildings. Directive 2010/30/EU and the corresponding implementing legislation establish the legal framework for labelling and consumer information regarding energy consumption for energy-related products. The last regulated by several Commissions' Delegated Regulations on Implementing Labelling Regulations.

3. BUILDING RENOVATION AND EXEMPLARY ROLE OF PUBLIC BUILDINGS

Building renovation and high building standards are core issues for energy efficiency. Accordingly, an important part of the EU legislation is dealing with these issues, especially the EU directives on energy efficiency (EED 2012/27/EU) which is directly linked to the energy performance of buildings directive (EPBD 2010/31/EU).

In the EED the issues of a building renovation strategy and the exemplary role of public buildings is highlighted. In short:

- ▶ Member States shall establish a long-term strategy for mobilising investment in the renovation of the national stock of residential and commercial buildings (public and private) (EED, Art.4).
- ▶ Member States shall ensure that 3% of the total floor area owned and occupied by the central government is renovated each year (EED, Art.5).
- ▶ As laid down in the reference to the EPBD these requirements have to be considered for buildings with a total useful floor area of more than 250 m² (since July 2015). This is defined in the EPBD 2010 laying down the quality of new buildings and renovation (EPBD 2010/31/EU).

Referring to the local level, it is defined that Member States may extend these requirements to administrative departments at a level below central government. In addition Member States shall encourage public bodies, including at regional and local level, and social housing bodies governed by public law, with due regard for their respective competences and administrative set-up, to:

- ▶ adopt an energy efficiency plan (exemplary role)
- ▶ put in place an energy management system, including energy audits

- ▶ use, where appropriate, energy service companies, and energy performance contracting to finance renovations and implement plans to maintain or improve energy efficiency in the long term.

Even though these requirements are laid down in the EED, they are only defined as optional. Accordingly, the implementation of EU Member States differs concerning the involvement of local governments in fulfilling the national requirements of EED.

3.1 Building renovation and exemplary role of public buildings – energy efficiency of buildings in general

The situation in terms of implementation of EE directive and EPBD concerning building standards, the renovation of buildings and the exemplary role of public buildings in the NALAS operational area – South Eastern Europe - is reflected in the following table.

Table 1: Overview on implementation of EE and EPBD in terms of energy demand for buildings

Association	EE and EPBD – implementation on buildings
Association of Albanian Municipalities	<p>Directive 2012/27/EU on Energy Efficiency, was adopted only on 15 October 2015 establishing a common framework of measures for the promotion of energy efficiency and setting a 20% energy efficiency target in the Energy Community by 2020.</p> <p>The Energy Efficiency Law no. 124/2015 (27 November 2015) was prepared in close cooperation with the Secretariat of Energy Community (ECS). The law provides for an indicative energy savings target, the Energy Efficiency Action Plan (EEAP) and its monitoring, the exemplary role of the public sector, energy audits and promotion of the market for energy services. It also envisages institutional strengthening, i.e. the establishment of an energy efficiency fund and an energy efficiency agency. The Ministry is working on drafting the secondary legislation on energy audits promotion of the market for energy services and the establishment of the energy efficiency fund and the energy efficiency agency.</p> <p>Directive 2010/31/EU on the Energy Performance of Buildings is actually in its parliamentary procedure. The draft is prepared with the assistance of the EBRD and the ECS, an adoption is expected soon. The adoption of the Law on the Energy Performance of Buildings in Albania is still pending, and thus compliance with Directive 2010/31/EU still needs to be achieved.</p> <p>The implementation of energy efficiency policy in Albania will require a strong institutional and financial framework for energy efficiency. The ECS is foreseen to support the setting up of a dedicated Energy Efficiency Agency and an Energy Efficiency Fund, which will enable the effective implementation and financing of measures and projects in the field of energy efficiency in Albania.</p>
Bosnia and Herzegovina	
Association of Municipalities and Cities of the Federation of Bosnia and Herzegovina	<p>Entity laws (adopted in RS but not yet in FBiH) envision the transposition of the ESD directive which also deal as the exemplary roles of public buildings. However, systematic action in this direction is missing, there are no clear governmental actions addressing this issue. UNDP together with the Environmental fund in FBiH and RS are conducting energy audits of the public buildings, such as the buildings owned and occupied by the government bodies (central government, entity, including schools, hospitals etc). The World Bank program is initiated and should start this year implement the program of building renovation in both entities. UNDP energy audits materials may be used for the baseline calculations.</p>
Association of Towns and Municipalities of Republic of Srpska	<p>Republic of Srpska has a Law on Energy Efficiency since 2013 (Official Gazete RS, no.. 59/13), also EPBD is covered by according laws</p>

Association	EE and EPBD – implementation on buildings
National Association of Municipalities of the Republic of Bulgaria	<p>Main objectives and issues are laid down in the National Energy Efficiency Action Plan 2014 – 2020. State bodies and local authorities have to develop and adopt EE programmes consistent with the national energy efficiency objectives.</p> <p>The Energy Efficiency Act following requirements is defined to improve energy efficiency as part of the overall national sustainable development policy:</p> <ul style="list-style-type: none"> – combining a system of activities to improve energy efficiency and energy efficiency measures in energy production, energy transmission and distribution, as well as in final energy consumption; – setting up energy saving obligation schemes; – developing the market for energy efficiency services – setting up financing mechanisms and schemes as a support for the national energy efficiency target. <p>In addition, a regulation on energy efficiency auditing, certification and assessment of energy savings in buildings has been issued (REGULATION № 16-1594 from 11.13.2013). All public service buildings in use (with a total floor area of more than 250 m²) are subject to mandatory audit and certification (at all government levels). The owners of these buildings have to implement the measures prescribed by the audit within 3 years. Also, a subject of mandatory energy efficiency audit are the outdoor lighting systems, located in a nucleated settlement with population exceeding 20 000 residents.</p>
Association of Municipalities in the Republic of Croatia	<p>The law on energy efficiency (23.10.2014) regulates efficient energy use, adoption of plans at the local, regional and national level to improve energy efficiency and their implementation, energy efficiency measures, energy efficiency obligations, the obligations of a regulatory body for energy transmission system operators, distribution system operators and market operators, commitment power distributor, supplier of energy and/or water, especially energy services and determine the energy savings and consumer rights in the course of implementation of energy efficiency measures.</p> <p>In addition there have been issued regulations on energy audits and energy certification (under the Building Act – Law on Construction). These Regulations define the implementation of energy audits for buildings and regular inspection of heating and cooling systems or air conditioning, including contents of the report, energy certification process, content of energy certificates and criteria for low-energy buildings.</p> <p>The law on construction (12.12.2013.) is implementing Directive 2010/31/EU (EPBD) in Croatian national law. In October 2013 the government adopted a program on energy renovation of public buildings for the period 2014-2015, It is planned to reduce energy consumption in public buildings from 30 to 60%, for the implementation the Agency for Transactions and Mediation is responsible. The Fund for Environmental Protection and Energy Efficiency provides funds for financing (100%) and co-financing (40%) the implementation.</p>
Association of Kosovo Municipalities	<p>The existing law on energy efficiency does not address public authorities specifically. Recently the EPBD Directive is under transposition into national Law on Energy Performance in Buildings and it is foreseen to be adopted in the first quarter of 2016.</p> <p>The new EE law is in the process of drafting and it is planned to be adopted by latest in mid-2016. According to this law a renovation rate for the public building stock of 1% per year will be required as well as the exemplary role of public authority in this process. Until now all implemented EE projects followed the measures of NEEAP (National Energy Efficiency Action Plan) and were financed by EU funds, donors or National Budget.</p>

Association	EE and EPBD – implementation on buildings
Association of the Units of Local Self-government of Republic of Macedonia	The building law with its sub laws with minimum requirements for energy efficiency and the program for renovation of public buildings is still in draft. Additionally there are municipal programs that address energy efficiency in buildings.
Congress of Local Authorities from Moldova	Law on Energy Performance of the Buildings which transposes the EU directive 2010/31/EU into national law was adopted on July 11 th 2014. Implementation is in process.
Union of Municipalities of Montenegro	n.a.
Association of Communes of Romania	The EE directive was completely taken into the Law no. 372/2005 regarding the energetic performance of buildings, modified on 12.12.2013. The focus of Law no. 121/2014 is put on creating the legal framework for the process of elaboration and implementation of the national policy for achieving the national objective to increase the energy efficiency.
Standing Conference of Towns and Municipalities (Serbia)	Directives 2010/31/EU and 2012/27/EU are transposed into Serbian legislation by means of Law on Energy, Law on Planning and Construction and Law on Efficient Use of Energy. Since Serbia is not an EU member it was not obligated to enforce EE directive by 2014. Nevertheless, most of provisions I this Directive have been transposed with the new Energy Law. EPBD is implemented by the Law on Planning and Construction with two accompanying regulations (Rulebook on Energy Efficiency in Buildings and Rulebook on the Conditions, Content and Method of Issuing Certificates for Energy Performance of Building).
Association of Municipalities and Towns of Slovenia	Both EU-directives have been transposed into Slovenian national legislation within the renewed Energy Act EZ-1 (Energetski zakon, consolidated version February 24 th , 2015). Regarding the renovation of the public building stock, the Energy Act outlines the legal framework for the national long-term strategy for consolation of investment in buildings energy refurbishment. The strategy foresees an aggregate adaptation rate of residential buildings at 2% (from this 1.75% for single-unit houses, 2.5% for multi-unit until 2030) and 3% per annum for the public sector. A uniform refurbishment rate of approximately 3% should result in a median milestone of 30 million m ² or 1.5-2 million m ² per annum of refurbished building stock surface with at least a third of these refurbishments conducted with nZEB standards. The long-term strategic goal of the strategy is to achieve low or zero-carbon energy supply of buildings.
Marmara Municipalities Union	EE directive has not been implemented, though the requirements of EE directive are covered by the Law on Energy Efficiency (No.5627), the By-Law on Enhancing the Efficiency in the Use of Energy and Energy Sources (27/10/2011) and the By-Law on Energy Performance of Buildings (5/12/2008, recast 1/4/2010). It covers both building renovations and exemplary role of public buildings. Similar to EE directive, EPBD is covered by the By-Law on Energy Performance of Buildings (5/12/2008, recast 1/4/2010).

In general, EED and EPBD are implemented or implementation processes are ongoing, dependent on the status of the respective country as a member of EU or a member of Energy Community (with a later start of implementation).

In terms of energy efficiency, Energy Council and Energy Efficiency Coordination Group are important partners of implementation for signatories of the Energy Community Treaty. The Energy Community members have

to report to Council for Energy Efficiency, energy efficiency gains of 1% per year are obligatory. A monitoring verification platform (MVP) has been provided offering a software tool for national institutions in all languages (provided by GJZ – German Society for International Cooperation).

Even though implementation is ongoing in all countries (at different states of implementation), a general challenge for implementation is lack of capacity and lack of funding.

3.2 Regional and local implementation of the exemplary role of public buildings, cooperation and support from central government

In the directive it is defined as an objective that Member States shall encourage public bodies, including bodies at regional and local levels to follow the exemplary role

of their central governments. These requirements have been differently implemented in EU member countries.

In order to support implementation at local level most local governments need support from central governments or intermediate organizations. In any case, cooperation between the central government and regional or local levels in terms of implementation of the EE directive concerning public buildings or energy efficiency measures for buildings are reasonable, though not present to a considerable extent in many countries.

The following table presents the situation in South Eastern Europe in terms of the encouragement of bodies at regional and local levels to follow the exemplary role of public buildings in terms of energy performance and cooperation or support from central governments for regional and local levels.

Table 2: Overview on implementation of EE and EPBD in terms of encouragement at regional and local levels and cooperation between central governments and regional/local levels

Association	Encouragement of national level to follow the exemplary role in terms of energy performance of buildings also at regional and local levels	Cooperation/support between central government, regional and local levels
Association of Albanian Municipalities	n.a.	n.a.
Bosnia and Herzegovina Association of Municipalities and Cities of the Federation of Bosnia and Herzegovina	There is no clear plan yet. The NEEAP which should be produced in BiH by the June 2016 should address this issue with clear plan. Article 5 of the EED (adapted for EnC contracting parties) should be implemented from January 1st 2018.	There are some activities addressing the coordination mechanisms between different policy layers and in FBiH there is a plan for development of cantonal EE plans and afterwards entity plans supporting the coherent policy creation. However, this is more donor driven support (mainly GIZ) than the real commitment of the government. This issue should also be addressed in the BiH NEEAP.
Association of Towns and Municipalities of Republic of Srpska	The Law on Energy Efficiency in the Republic of Srpska encourages also regional and local authority levels concerning energy performance of buildings and the process of buildings certification. All municipalities with more than 20,000 inhabitants are obligated to make Energy Efficiency Action Plan.	n.a.

Association	Encouragement of national level to follow the exemplary role in terms of energy performance of buildings also at regional and local levels	Cooperation/support between central government, regional and local levels
Association of Municipalities of the Republic of Bulgaria	According to the Bulgarian laws all public buildings in use with a total floor area over 250 m ² shall be subject to mandatory audit and certification. The owners of these buildings shall be bound to implement the measure prescribed by the first audit for achieving the minimum required energy consumption class within 3 years from the date of acceptance of the audit. The owners of public-services buildings with total floor area over 250 square meters, for which an energy performance certificate has been issued, shall be bound to clearly display the certificate in the building. Also a subject of mandatory energy efficiency audit are the outdoor lighting systems, located in a nucleated settlement with population exceeding 20 000 residents. The audit shall be performed at least every four years after changes made to the installation (replacement of illuminants, a change to the lighting schemes and/or power supply schemes).	Energy Efficiency and Renewable Sources Fund finances the implementation of energy efficiency improvement activities and measures and the activities of energy production and use from renewable sources. Another national fund is available for panel blocks supporting auditing, implementation, and certification. Local authorities can also use the following available financial sources: <ul style="list-style-type: none"> - Bank loans, municipal bonds, commercial credits, leasing equipment; - Third party financing – ESCO schemes; - EU and national operational programs; - Bulgarian Energy Efficiency fund BEEF; - Municipal budget; - ELENA – financial instrument of the Covenant of Mayors initiative; - Dedicated energy/environmental funds; - Public-private partnership PPP.
Association of Municipalities in the Republic of Croatia	The law on energy efficiency (23.10.2014) regulates efficient energy use, adoption of plans at the local, regional and national level to improve energy efficiency.	The Fund for Environmental Protection and Energy Efficiency provides funds for financing (100%) and co-financing (40%) the implementation.
Association of Kosovo Municipalities	Municipalities elaborate municipal energy efficiency plans (MEEP) with emphasis on EE measures. LGs are not obliged to reach a quantitative target (national target: 2018 -9%).	MEEP may use EU funding – about 20 out of 38 municipalities have formulated a MEEP today. Support for local governments is provided through the association and energy agency KEEA. Planned: Municipal energy efficiency office as support for LGs and EE delegates per municipality.

Association	Encouragement of national level to follow the exemplary role in terms of energy performance of buildings also at regional and local levels	Cooperation/support between central government, regional and local levels
Association of the Units of Local Self-government of Republic of Macedonia	In the national energy law there are several requirements for municipalities (e.g. obligation to renovation), most significant are programs for energy efficiency. Municipalities have to elaborate 3-years action plans and monitor yearly objectives since 2011, this is obligatory, about 50% have been elaborated yet.	No adequate support from central government. Currently, there are no funds available. EE fund for implementation is discussed currently. National energy agency supports cooperation.
Congress of Local Authorities from Moldova	According to the law local public authorities have to integrate in their local programs and action plans on energy efficiency measures related to increasing energy performance of the buildings.	The support is limited to the activity of the Energy Efficiency Fund which finances/co-finances energy efficiency projects in building sector.
Union of Municipalities of Montenegro	n.a.	n.a.
Association of Communes of Romania	Because in Romania almost all the buildings with apartments (blocks of flats) are built before 1990, there is a big loss of energy, especially heating, but also the lighting system (inside the building) is old. So, most of the efforts of local level were focused on renovating the blocks and the public buildings in order to increase their energy performance.	The biggest part of the money is coming from local budgets but there are also national programs and some steps to use also some EU funds in this direction.
Standing Conference of Towns and Municipalities (Serbia)	This objective is implemented through provisions of Law on Efficient Use of Energy article 68, and Second NEEAP Article 3.4.1 The activities of the public sector as an example of good practice	Cooperation between local and central level: data collection and introduction of Energy Management Information System (EMIS) is done by the Ministry but main users should be public buildings at the local level. EE project implementation – e.g. World Bank program (Serbian Energy Efficiency Project) including energy retrofit of a number of typical public buildings at the local level. KfW credit line is supporting also local authorities.

Association	Encouragement of national level to follow the exemplary role in terms of energy performance of buildings also at regional and local levels	Cooperation/support between central government, regional and local levels
Association of Municipalities and Towns of Slovenia	No regional administrative body (210 decentralized municipalities and centralized national authority). Local authorities must comply with the national legislation and are consulted within the legislative process. Energy Act obliges local communities to adopt a Local Energy Concept (definition of the systemic use of energy in the local community). The Local Energy Concept is the framework for spatial and economic development, including the development of local public energy companies, energy efficiency measures, use of renewable energy sources and improvement of air quality and must be in line with the national energy concept, Action Plans and Operational Programmes. 3% of public building stock has to be renovated, valid for central government – obligation for municipalities is under discussion.	The establishment of local energy agencies in 2006 was supported by the Intelligent Energy Europe – IEE framework programme. Local energy agencies provide a broad range of services to their founders on the municipal/local level. Additional engagement in sustainable energy development on the local level is voluntary.
Marmara Municipalities Union (Turkey)	10% reduction in energy consumption by means of EE measures by public authorities is envisaged as a target in Energy Efficiency Strategy Document for 2013-2023 (but not binding). The by-law on Enhancing the Efficiency in the Use of Energy and Energy Sources requires public authorities to invest in building renovation. Municipal plans are optional – SEAPs/energy action plans.	No specific emphasis made on cooperation or support between central government and local/regional authorities in terms of buildings

The situation in terms of involving the local level in the implementation of energy efficiency varies. In none of the countries the local governments are obliged to reach specific quantitative targets but

- ▶ the elaboration of municipal adoption plans, energy efficiency action plans or energy concepts is obligatory in Croatia, Slovenia, Macedonia, Kosovo and Moldova, in Bosnia and Herzegovina this obligation is restricted to cities with more than 20,000 inhabitants;
- ▶ in general, obligations concerning the energy performance of public buildings have to be met also by local governments in their role as owner of municipal buildings,
- ▶ nevertheless, the obligation to reach a specific target concerning the share of public buildings renovated per year mainly stays at national level;
- ▶ in Bulgaria, all owners of public buildings with a total floor area over 250 m² (at all spatial levels) are

obliged to undergo energy audits every 3 years; Also the energy audits are required in larger cities (with more than 20,000 inhabitants) at least every four years for the public lighting systems.

Support from the central government is provided mainly through financial support e.g. by specific energy efficiency or sustainability funds but not in all countries. A national fund for implementation of energy efficiency projects is available for the local governments in Bulgaria, Croatia and Moldova.

Another type of support is provided through intermediary institutions at national or regional level, mainly energy agencies. These entities usually provide a broad range of services according to the needs of local governments. Energy agencies support the implementation in Slovenia (regional agencies), Macedonia (national agency) and Kosovo (national agency).

In Kosovo, the establishment of a municipal energy efficiency office at the energy ministry is planned which shall act as a specific support agency for local governments. In addition municipal energy efficiency delegates

shall be appointed in order to provide with a contact person for the new institution in each municipality.

General challenges have been discussed at the workshop:

- ▶ The responsibility for local governments at national level e.g. in terms of energy efficiency implementation often is divided between different ministries. E.g. in Turkey at least three ministries – domestic ministry, energy ministry and ministry for environment – are responsible for different aspects of development. Thus, available support is given only for selected aspects and cooperation between national and local levels is difficult.
- ▶ In some countries, ownership and responsibility for public buildings at local level is diversified, as e.g. schools in Macedonia are owned by central government but municipalities are responsible for operation. Thus in general the central government decides on the date and depth of renovation, nevertheless the municipality could renovate with its own money.

4. PROCUREMENT OF ENERGY EFFICIENT PRODUCTS AND SERVICES

Article 6 of the EED lays down the requirements concerning procurement of energy efficient products and services. In short, the article defines, that:

- ▶ Member States shall ensure that central governments purchase only products, services and buildings with high energy-efficiency performance.
- ▶ This requirement is defined with the following restriction: "... insofar as that is consistent with cost-effectiveness, economical feasibility, wider sustainability, technical suitability, as well as sufficient competition".

Again the relevance of these requirements for regional and local levels is highlighted in the directive, but rather defined as a request (no binding requirement):

- ▶ Member States shall encourage public bodies, including at regional and local levels, to follow the exemplary role of their central governments.
- ▶ Member States shall encourage public bodies, when tendering service contracts with significant energy content, to assess the possibility of concluding long-term energy performance contracts that provide long-term energy savings.

From the current implementation of the EED or similar legal frameworks in the South Eastern Europe following experiences and challenges were discussed.

Table 3: Overview on procurement

Association	Implementation of energy efficient public procurement	Local/regional implementation, cooperation/support from central government
Association of Albanian Municipalities	n.a.	n.a.
Bosnia and Herzegovina Association of Municipalities and Cities of the Federation of Bosnia and Herzegovina	FBiH: Not implemented. This should be addressed in BiH NEEAP as well according to the NEEAP template for EnC contracting parties published by the EnC Secretariat.	Not yet implemented, no support
Association of Towns and Municipalities of Republic of Srpska	Not implemented, but the general Public Procurement Law on state level regulates that public purchasing has to consider highest standards for selected products	This law is obligatory for all public bodies, local authorities have to act and report according to legislation.

Association	Implementation of energy efficient public procurement	Local/regional implementation, cooperation/ support from central government
National Association of Municipalities of the Republic of Bulgaria	A public procurement law has been enacted with criteria for green public procurement. Additionally, a national action plan for promotion of green public procurement 2012-2014 has been elaborated.	Locally implemented but with the challenge that the procurement are not marked as "green public procurement" because of the lack of administrative capacity with expertise in green criteria.
Association of Municipalities in the Republic of Croatia	Law on energy efficiency contains energy efficiency requirements for purchasing by public bodies. Procurement related to energy obliges the contracting authority to use selection criteria and technical specifications considering cost-effectiveness, economic feasibility, overall sustainability, technical suitability and a sufficient level of competition. National action plan for green public procurement (2015-2017 with an outlook to 2020) with a goal of 50% of public procurement procedures considering criteria of green public procurement by 2020. Focus is laid on the introduction of basic green standards in public procurement for priority groups of products and services.	Obligatory for all public bodies.
Association of Kosovo Municipalities	Law on Public procurement does not emphasize any specific requirements regarding to purchasing EE goods and services. One article proposes consideration of EE criteria but this is not mandatory.	n.a.
Association of the Units of Local Self-government of Republic of Macedonia	Not implemented	Not implemented
Congress of Local Authorities from Moldova	Not yet implemented.	There is a project implemented by the Ministry of Finance within EaP Green Programme which is expected to contribute to improve the cooperation regarding EE procurement.
Union of Municipalities of Montenegro	n.a.	n.a.

Association	Implementation of energy efficient public procurement	Local/regional implementation, cooperation/ support from central government
Association of Communes of Romania	The new EU Directives regarding the procurements – 23, 24 and 25 from 2014 are still subject of discussions in Romania in order to be integrated in 4 new laws regarding the public procurements: <ul style="list-style-type: none"> – A law regarding the classic procurements – Directive 2014/24; – A law regarding public utilities, procurements done by entities with relevant activities in fields like: water, energy, transport and post – Directive 2014/25/UE; – A law on public – private partnership and concessions – Directive 2014/23/UE; – A law on appeals – Directive 2007/66/CE. 	At this moment, there are quite a lot of municipalities, mainly urban but also rural, who are purchasing, in associations, energy using Romanian Commodities Exchange. This is done mainly starting in 2014, the contracts have usually 1 year of implementation and the obtained prices are much lower than the prices before.
Standing Conference of Towns and Municipalities (Serbia)	Law on Efficient Use of Energy prescribes that public bodies have to consider criteria of energy efficiency during procurement process.	Obligatory for all public bodies including regional and local authorities. Rather contrary, fiscal discipline that is being enforced from the central government is not recognising EE principles since their economic effects are not always obvious.
Association of Municipalities and Towns of Slovenia	The requirements are outlined in the Energy Act defining the general environmental requirements of all energy related products that are to be legally marketed in Slovenia: prerequisites with regards to energy identification of products, including technical specifications, measuring procedures and energy labelling. Procurement procedures are outlined in the Public Procurement Act. The government may include environmental, social and ethical aspects and the manner in which they are to be evaluated in the public tender. Additionally, the Act Regulating Public Procurement in Water, Energy, Transport and Postal Services contains mandatory procedures for the award of public works contracts, public supply contracts and public service contracts in the fields of maritime, energy, transport and postal services.	Municipalities in Slovenia are obligated to follow the legislation adopted on the national level. Local authorities are subjected to independent auditing and inspection and must comply with the valid national legislation. Local authorities can consult ministries and are informed and advised in case of legal amendments.
Marmara Municipalities Union (Turkey)	Not implemented. In the Energy Efficiency Strategy procurement of energy efficient products by public authorities is defined as an action.	Document for technical tender "green procurement for public authorities" provides information concerning selection criteria, provided by the Turkish Ministry of Environment and Urbanization.

To summarize the situation in NALAS operational region – South Eastern Europe,

- ▶ Overall, in all EU member states energy efficient public procurement has been implemented as a binding requirement (as required from the EU directive).
- ▶ This requirement seems to be binding at all spatial levels – for national, regional and local public authorities. In Slovenia this is accompanied by auditing and inspections at local level
- ▶ In EU candidate and potential candidate countries, public procurement with focus on energy efficiency is partly recommended for authorities but not implemented as a binding requirement yet except for Serbia. This is mainly due to the later deadline for the implementation of energy efficient public purchasing, according to EED for EnC countries, which is 15.10.2017.

The discussion on energy efficient public procurement at the workshop highlighted some important aspects to be considered.

Energy efficient public procurement is actually important for public lighting, this seems to be easily understood due to rather short pay-off periods. Long-term consideration of lifecycle costs is less common and difficult to implement, because of:

- ▶ lack of knowledge and human resources and
- ▶ partly counteracting objectives (e.g. economical investments versus long-term operation costs).

Necessary support has been identified in terms of

- ▶ Reasonable, easily understandable interpretation of existing annexes to laws, which give precise information on technical specifications and sometimes contain too much information. In some cases, this is too complex for responsible persons at municipalities in order to be used for a day-to-day implementation.
- ▶ Thus additionally, minimum requirements and rules for public procurement would be helpful.
- ▶ In addition – as consideration of energy efficient criteria largely depends on human resources, capabilities and skills for specifying these criteria – information and training for responsible persons should be intensified.

Finally, research projects might support share of good practice and experience with implementation. Some of the NALAS member associations are involved in such projects as e.g. NAMRB as a partner in a Horizon 2020 project on education on green procurement as well as the project in Croatia “Buy Smart+” (<http://www.buy-smart.info>) on green procurement experiences and transfer of know-how with focus on energy related technologies.

5. OBLIGATION SCHEMES ON ENERGY EFFICIENCY

In the energy efficiency directive, Article 7, an obligation for Member States is defined to set up an energy efficiency obligation scheme with two options.

The first option to fulfil this obligation is formulated as follows:

The Member State shall set up an energy efficiency obligation scheme to ensure that energy distributors and/or retail energy sales companies achieve a cumulative end-use energy savings target by 2020.

New savings of 1.5% of the annual energy sales to final customers have to be achieved each year from 2014 to 2020 (transport may be partially or fully excluded).

In doing this, the Member State may permit obligated parties to count towards their obligation certified energy savings achieved by other third parties.

As an alternative, the second option allows the Member State to opt for other policy measures to achieve energy savings among final customers. Such policy measures reducing end-use energy consumption or supporting energy efficiency are e.g.: energy or CO₂ taxes, financing schemes and instruments or fiscal incentives, regulations or voluntary agreements, standards and norms, energy labelling schemes, training and education.

The member States may also combine these options. The following figure shows the implementation of Article 7 in EU Member States (status 2014).

Figure 6: Implementation of Article 7 of EED in the Member States (2014)



Source: CA Energy Efficiency Directive, Tackling Double Counting in Article 7 Implementation, 2014

As shown, also Member States did implement this obligation differently – according to the given options. The implementation started in the recent past and is still ongoing. About 28% of member states have chosen either only one of the options (“YES”), but the major part of

countries chose to combine the two options (“NO”)– obligation schemes to fulfil as certain share of the binding energy savings target plus additional policy measures.

As for the relevance of these obligation schemes for local governments, different aspects have to be considered. In their role as owners or shareholders of municipal energy utilities or in case they act as energy distribution companies, local governments are obliged directly by article 7. Nevertheless, usually, local governments will

not be affected by the regulation directly but they might get the option to make use of the obligation in case of an obligation scheme which foresees an offset of certified energy savings achieved by third parties. In this case, local governments might gain additional money for investments by selling energy savings to obliged parties (e.g. through trading platforms)

The survey and workshop results from NALAS Task Force Energy Efficiency allow a more detailed assessment.

Table 4: Overview on obligation schemes

Association	Existence of obligation schemes and relevance/use of local governments
Association of Albanian Municipalities	n.a.
Bosnia and Herzegovina	
Association of Municipalities and Cities of the Federation of Bosnia and Herzegovina	Not implemented. Currently USAID project Energy Investment Activity is supporting the preparation of the analysis of impact assessment of the obligation schemes on prices of different energy carriers.
Association of Towns and Municipalities of Republic of Srpska	No obligation schemes on energy efficiency implemented. A Fund for environment and energy efficiency exists but it is not fully functional yet.

Association	Existence of obligation schemes and relevance/use of local governments
National Association of Municipalities of the Republic of Bulgaria	<p>An energy saving obligation scheme is set up in order to support the national energy efficiency target. The total cumulative target is divided in individual energy saving targets for following obligated parties:</p> <ul style="list-style-type: none"> – end suppliers, suppliers of last resort, traders licensed for the business of trade in electricity (>20 GWh of electricity to final customers annually); – heat transmission companies and heat power suppliers (>20 GWh of heat power to final customers annually); – end suppliers and traders for natural gas (>1 million cubic metres to final customers annually); – traders of liquid fuels (>6,500 tonnes of liquid fuels to final customers annually, except fuels for transport purposes); – traders of solid fuels (>13,000 tonnes of solid fuels to final customers annually). <p>In order to support implementation, a revolving fund for investments is in place.</p> <p>The methodologies for setting the national energy efficiency target, the setting of the total cumulative target, the setting up of an energy savings obligation scheme and the allocation of the individual energy savings targets to the obligated parties is determined by an ordinance of the Council of Ministers.</p> <p>Bulgaria has established a system of energy savings certificates with the purpose to prove the energy efficiency contribution of the holder. The energy savings certificates are issued by the Executive Director of Sustainable Energy development agency. They also may be transferred by an obligated party to another obligated party, or from non-obligated to obligated party.</p> <p>Bulgarian municipalities are informed and use all opportunities to invest in energy efficiency and renewable energy sources having in mind the broad scope of benefits.</p>
Association of Municipalities in the Republic of Croatia	The Law on Energy Efficiency defines an obligation for energy distributors to achieve a certain amount of savings of final energy by investing in energy efficiency improvements. In this case, the distributor does not achieve these saving contributions to the national Energy Efficiency Fund have to be paid equal to investments necessary to meet the share of missing savings (previous year).
Association of Kosovo Municipalities	<p>This is a completely new requirement for SEE countries under the transposition of EE directive.</p> <p>The central government actually is working on this issue. It is foreseen under the draft law on energy efficiency to introduce White certificates as well as an obligation scheme will be regulated by secondary legislation after the new draft Law is adopted.</p> <p>Contrary, electricity consumption is still supported by a reduction of VAT by 50% for all sectors today.</p>
Association of the Units of Local Self-government of Republic of Macedonia	No obligation schemes on energy efficiency implemented. The topic is too new.
Congress of Local Authorities from Moldova	No obligation schemes are implemented yet. The EE directive from 2012 is not yet transposed in the national legislation.

Association	Existence of obligation schemes and relevance/use of local governments
Union of Municipalities of Montenegro	n.a.
Association of Communes of Romania	<p>The national indicative target for reducing energy consumption is 19% by 2020. The national policy defines energy efficiency targets for improving energy efficiency, indicative targets for energy savings, energy efficiency improvement measures related to all sectors of the national economy, especially referring to:</p> <p>(a) introduction of energy efficient technologies, a modern measurement and control systems and energy management systems for monitoring, evaluation and forecasting continuous energy efficiency energy consumption;</p> <p>(b) promoting the use of energy efficient equipment and devices and renewable energy to the final consumers;</p> <p>(c) reducing the environmental impact of industrial activities and production, transport, distribution and consumption of all forms of energy;</p> <p>(d) the application of modern principles of energy management;</p> <p>(e) providing financial incentives and tax law;</p> <p>(f) developing the market for energy services.</p> <p>In order to achieve energy savings among consumers in the period 1 January 2014-31 December 2020 shall adopt energy efficiency policy measures aimed at achieving savings each year of 1.5% of annual sales all energy distributors or all consumers by energy suppliers by volume, averaged over 3 years immediately prior to 1 January 2013.</p> <p>Energy policy measures relate mainly to conducting independent energy audits, training of energy auditors, training and education, including consumer advice programs, standards and norms that aim at improving the energy efficiency of products and services, energy labelling schemes, regulations or voluntary agreements that lead a reduction of energy end-use, development of energy service companies ESCO, establishment of a specialized fund for energy efficiency investments, systems and financing instruments or fiscal incentives.</p>
Standing Conference of Towns and Municipalities(Serbia)	No obligation schemes on energy efficiency implemented. Policy measures comprise energy labelling, energy management, training and education.
Association of Municipalities and Towns of Slovenia	<p>In Slovenia, energy supply companies are obligated to achieve energy-savings. These may be achieved by implementation of educational, informative and awareness raising of the general public, energy consultations, energy audits, financial incentives and other pertinent programs.</p> <p>Most energy distributors/retail energy sales companies fulfil this obligation by allocating financial assets to the Eco Fund. The amount of funds allocated has to match the energy savings and specific investment costs. The Eco fund co-finances measures in energy efficiency, renewable energy sources and water management through tenders to the public and companies. The fund covers up to 20% of the eligible costs (equals VAT).</p> <p>LGAs are informed about this opportunity and apply it extensively to foster investment in EE and RES. The investment in energy efficiency provides a broad range of benefits for the local communities ranging from the reduction of energy demand, increase of energy independence, reduction of greenhouse gases, increase in the stability of the local energy supply chain, added value to the existing building stock (public and residential), better air quality, additional services for the local residents (for e.g. free of charge public transport system Lokal), and so forth.</p>

Association	Existence of obligation schemes and relevance/use of local governments
Marmara Municipalities Union	<p>Currently obligation schemes on energy efficiency are not in force in Turkey.</p> <p>Nevertheless, In Energy Efficiency Strategy Document is included the enhancing of efficiency of generation, transmission and distribution of energy as well as reducing energy loss and harmful emissions. Thus all power plants in Turkey shall increase cycle efficiency up to 45% until 2023. Industrial companies committing to reduction of energy consumption by 10% receives grants from central government.</p> <p>Some additional policy measures for encouragement of energy efficiency (since 2014 May): Exemption from value added tax or customs tax, tax deduction, support of insurance premium, support of interests, land allocation (audit from ministry, 10% grant for investments in land, support for enlargements or locational changes for industries).</p>

The results of the workshop and the survey show that obligation schemes for energy distributors and/or retail energy sales companies to achieve energy savings only exist in some countries. Nevertheless, other strategic policy measures seem more common.

Since this is a widely new topic also for the EU members, this situation is not surprising. In addition there is only limited information about the question of potential for LGAs to profit from such schemes (e.g. by trading platforms, etc.).

Overall, the findings show, that

- ▶ all EU countries in South Eastern Europe have decided to make use of obligation schemes for selected actors in the energy market;

- ▶ obligation schemes have been combined with energy efficiency funds, which may respectively have to be endowed with financial means if quantitative targets are not achieved;
- ▶ nevertheless this obligation is a new requirement, which came into force only after issuing the EED in 2012 also in most EU countries; thus, many countries still collect experience with this new challenge;
- ▶ in the countries from SEE that are not obligated yet, this approach has not come into force yet;

Implementation of obligation schemes and the achievement of a cumulative end-use energy savings target by 2020 is a major challenge for all countries. New experiences will have to be collected and good approaches should be exchanged between countries.

6. EFFICIENCY OF HEATING AND COOLING (NETWORKS)/CHP

Article 14 of EED requires an assessment of efficiency of heating and cooling networks and combined heat and power plants. In short, EED requires that Member States shall carry out a comprehensive assessment of the potential for the application of high-efficiency cogeneration and efficient district heating and cooling. As a deadline for this assessment, EC defined December 2015 for EU members.

In order to define a rather spatially disaggregated level of the assessment, the EED requires that the assessment shall include:

- ▶ heating/cooling demand points of municipalities and conurbations with a plot ratio of at least 0.3, and industrial zones with a total annual heating and cooling consumption of more than 20 GWh;
- ▶ existing and planned district heating and cooling infrastructure;
- ▶ potential heating and cooling supply points;

In addition, Member States shall adopt policies which encourage the due taking into account at local and

regional levels the potential of using efficient heating and cooling systems (esp. highly efficient CHP). Here an additional reference is given to the local and regional level by the (not binding) request to take account of the potential for developing local and regional heat markets.

In the case of Article 14, there are no direct impacts on local and regional governments to be expected. Nevertheless, the governments below the level of central state might benefit from these studies by getting:

- ▶ rough information on relevant heat densities in their respective area
- ▶ better information on economically feasible options
- ▶ discussion on options to make use of advantageous opportunities, e.g.: energy aware spatial planning and supported (or obligatory) connection to district heating networks

In South Eastern Europe, the situation is diverse in terms of existence and ownership of heating networks. In the EU Member States, the implementation of this Article is currently ongoing.

Table 5: Overview on heating and cooling networks

Association	Assessment of the potential – member state level	Cooperation or support from central government
Association of Albanian Municipalities	n.a.	n.a.

Association	Assessment of the potential – member state level	Cooperation or support from central government
Bosnia and Herzegovina Association of Municipalities and Cities of the Federation of Bosnia and Herzegovina	There is no national assessment yet. Elektroprivreda BiH with their own funds supported the preparation of two feasibility studies on cogeneration from existing coal Thermal Power Plants and providing district heating to the cities of Zenica and Sarajevo (ongoing study).	FBiH: No cooperation, the feasibility studies were conducted by the Elektroprivreda BiH based on their market interest and not as a result of the state/entity program.
Association of Towns and Municipalities of Republic of Srpska	The issue is mentioned in the national "Strategy of Energy Sector Development until 2030" but there is no assessment of potential at national level.	District heating systems are under jurisdiction of local governments, but all issues related to permits, loans are under government jurisdiction. Some financially complex projects interfering with international financial institutions require involvement Council of Ministers.
National Association of Municipalities in the Republic of Bulgaria	The Minister of Energy prepares and Council of Ministers approves: <ul style="list-style-type: none"> o a comprehensive assessment of the potential for the application of high-efficiency cogeneration of heat and electricity and efficient district heating and cooling; o a cost-benefit analysis as part of the comprehensive assessment, covering evaluation of programmes for supplies and projects for establishing the most cost-effective and beneficial heating or cooling option; the said analysis may be part of the environmental assessment of the programme and the projects, if such assessment is envisaged; o an analysis of the national potential as part of the comprehensive assessment and an assessment of the progress achieved in increasing the share of high-efficiency cogeneration in gross electricity consumption; o measures for efficient district heating and cooling infrastructure to be developed and/or to accommodate the development of high-efficiency cogeneration and the use of heating and cooling from waste heat and renewable energy sources in accordance with the assessment and the aforementioned analysis. The Ministry of Energy actually prepares the required assessments and analyses.	n.a.

Association	Assessment of the potential – member state level	Cooperation or support from central government
Association of Municipalities in the Republic of Croatia	Such network is not very much developed in Croatia yet but similar actions are mentioned in the National Plan for Energy Efficiency. Nevertheless, there are only few heating or cooling networks in Croatia, mainly in the larger cities.	n.a.
Association of Kosovo Municipalities	No assessment of potential at national level. A comprehensive assessment for cogeneration has been done for the district heating network in Pristina as a local project last year, testing operation has started in 2014. In 2015, the next phase of the project started with continuing the renovation of the distribution network (about 11.5km and 50 substations, including a controlling system SCADA).	n.a.
Association of the Units of Local Self-government of Republic of Macedonia	District heating and cooling networks are not managed by local governments in Macedonia. There are several local examples for small scale internal heating projects connecting municipal objects.	n.a.
Congress of Local Authorities from Moldova	An assessment of potential at national level has been elaborated for district heating.	In two municipalities (Chisinau and Balti municipality) efforts were done to increase the efficiency of the systems. An EU/UNDP project on biomass and the objective of development of local and regional biomass markets has been elaborated. Also a PPP was developed supplying about 17 public institutions with heat produced based on biomass in one district (rayon).
Union of Municipalities of Montenegro	n.a.	n.a.
Association of Communes of Romania	A comprehensive assessment of the potential for the application of high-efficiency cogeneration and efficient district heating and cooling has been elaborated until December 2015.	Law no. 121/2014 on energy efficiency, art.14 – “Local and central public administration authorities adopt policies which promote local and regional development and integrated use of efficient systems for heating and cooling, in particular those using high efficiency cogeneration, both for heating and for cooling processes for final users, considering the potential development of local and regional markets for thermal energy”.

Association	Assessment of the potential – member state level	Cooperation or support from central government
Standing Conference of Towns and Municipalities (Serbia)	No assessment of potential at national level.	No support.
Association of Municipalities and Towns of Slovenia	Estimation of energy savings and GHG mitigation potential from cogeneration of heat and power (and cooling) provide the baseline for the preparation of the EKS, of which the first draft was subjected to a public hearing in the summer of 2015. The draft of the EKS identifies the role and scope of including high efficiency cogeneration units into the energy supply chain for the midterm (till 2035) and long-term (up to 2055) time period. Certain energy supply potential have been successfully implemented in the 2010-2012 period, while the national government was actively supporting the implementation of before mentioned systems accompanied with an effective co-financing mechanism based on the feed-in tariff. Several potentials and capacities have been analysed and considered on local level.	The Energy Act, associated statutory acts and sustainable action plans determine energy management in district heating and cooling systems. Managers of district heating and cooling systems are obligated to achieve energy savings on the level of the final consumers according to the national and EU legislative mandates.
Marmara Municipalities Union	There is no comprehensive assessment of the potential for application of high-efficiency cogeneration and efficient district heating and cooling at national level.	Cooperation is encouraged between local authorities and the government in terms of waste to energy generation (Law on Enhancing the Efficiency in the Use of Energy and Energy Sources).

In general, the required assessment has been elaborated at national level in all EU Member States as well as in Moldova. Nevertheless, so far there is only little knowledge on the results at local level.

In some countries in South Eastern Europe, heating networks have been built only in large cities if at all (e.g. Croatia, Macedonia). In others, municipal heat networks have been privatised mostly 30 years ago, therefore CHP

projects are mostly private investments today (e.g. Bulgaria). Due to this situation, only few municipalities are owners or shareholders of heating/cooling networks in NALAS operational region.

Nevertheless, obligation schemes for energy utilities and distributors combined with energy efficiency funds could be an interesting approach also for other states in the future.

7. GOOD PRACTICES

7.1.1 National Association of Municipalities of the Republic of Bulgaria – demo-renovation of residential multi-storey buildings

The first phase of the program has been realized under an UNDP programme together with the Bulgarian Ministry of Regional Development and Public Works (2007-2011).

During implementation, the following measures have been set:

- ▶ Energy efficiency measures: e.g. thermal insulation, replacement of windows and doors, renewal of the external façade, additional measures recommended in the energy survey report;

- ▶ Refurbishment of common parts of the building related to energy efficiency and safe habitation: e.g. renewal of the main entrance door, the roof overhang and the entrance steps, painting of the stairwell walls, etc.
- ▶ Replacement of vertical main water supply and sewage pipes.
- ▶ Renovation of surrounding public areas.

In Bulgaria about 50 panel blocks have been renovated with support of this program (status 2015). Nevertheless, even though a grant for the renovation is given, realization is often difficult because 100% agreement of flat owners is necessary for the application.

Figure 7: Demo renovation of residential multi-storey buildings in Bulgaria



Source: NAMRB/Elena Anastasova and www.mrrb.government.bg

As a second stage of the program is supported by the Operational programme for Regional Development. The scheme “Support for energy efficiency in multifamily residential buildings” focuses on energy efficiency measures in panel blocks built before 1993. The project “Energy renovation of Bulgarian homes” will be provided for 36 urban centers in Bulgaria with a total grant of 50 million BGN. Duration of 3 years is planned for the project.

Specific beneficiary of the program is the “Housing policy” Directorate at the Ministry of Regional Development. Financial assistance for implementation of energy efficiency measures are granted to associations of condominium owners, registered in accordance with the procedure of the Law of Condominium Management in the corresponding municipal administration (www.mrrb.government.bg).

The grants have been given by “first come first serve” principle; but again a 100% agreement of flat owners and renters had to be provided for application. In case of funding by the program for urban centers (first call), the ministry covers full costs, including auditing, roof, design of free spaces, etc. In the next phase the program will require additional co-financing by inhabitants.

In December 2015 one project had started already, another 5 were expected to start soon. The city of Dobrich has applied a number of projects, 5 projects have been selected by the Ministry (realization of measures of about 25 million EUR).

7.1.2 Association of Municipalities in the Republic of Croatia – energy efficiency projects in the municipality of Vinica

The territory of Croatia is divided into 128 towns and 428 municipalities. In Croatia cities and municipalities are the lowest level of government (basic structural units). In addition, counties are local government units that are organized by the municipalities and cities.

The municipality of Vinica is most active in the implementation of energy efficiency projects. Following measures have been set since 2011:

- ▶ Introduction of energy efficient and environmentally friendly public lighting with 40% co-financing by the national Fund for Environmental Protection and Energy Efficiency (2011/2012),
- ▶ Energy renovation of the municipal kindergarden with 70% co-financing of the Ministry of Economy (2014, 35,000.00 EUR)
- ▶ Energy renovation of the locker room of the football club with 70% of co-financing of the Ministry of Economy (2015, 35,000.00 EUR)
- ▶ Implementation of the program for energy renewal of family houses. Subsidies were provided by the

Fund for Environmental Protection and Energy Efficiency (co-financing of 40% of the investment, max. 4,000.00 EUR) and by the municipality (co-financing of 11%) per applicant (2014/015).

- ▶ Currently the management Board is implementing a project for the energy renovation of the municipal office, which will improve the thermal properties of the building envelope (facade) and reduce energy consumption. The project will be co-financed by the Fund for Environmental Protection and Energy Efficiency with about 20,000.00 EUR (2015/2016, total investment about 50,000.00 EUR).
- ▶ The municipality of Vinica owns two solar power plants on its territory (10 kW, 30 kW). In an optimum position, the average solar power plant of 1 kW can produce between 1020-1090kWh electricity annually.

In general Croatia provides with solar power installations all over the country and wind power plants mainly along the Adriatic coast and on islands. Realisation of additional capacity is planned until 2020: 400 MW wind power, 52 MW solar power, 100 MW small hydro power, 85 MW biomass power.

7.1.3 Association of Kosovo Municipalities – energy efficiency, renewable energy production, policies and education

In terms of policy making and involvement of local government associations in the elaboration of national policies (e.g. concerning energy efficiency) the following practice has shown good experiences:

- ▶ the membership of AKM in the national working group for drafting of new legal requirements according to EED and EPBD as well as
- ▶ the involvement of AKM in the elaboration of MEEPs (Municipal Energy Efficiency Programs) as a member of the steering committee of the working group

- ▶ the involvement of AKM in the elaboration of SEAPs (Sustainable Energy Action Plans), for the implementation of SEAPs AKM is a supporter of beneficiary municipalities)

Another good practice example is given by the co-generation project of the power plant in Pristina. In this project, the existing thermal power plant has been equipped

with large scale heat exchangers in order to make use of the existing waste heat.

After realization of the project with an investment of approx. 30 million EUR the CHP-plant is providing an additional capacity of 40 MW of heat for district heating with an efficiency higher than 75%. An additional heat exchanger is planned for next year (plus 70MW).

Figure 8: CHP plant in Pristina



<https://www.ic-group.org/en/projects/energy/project/proj/fernwaerme-prishtina-kosovo-planung-und-begleitung-der-rehabilitierung.html>
Source: IC-Group

Awareness raising and education are deemed as important issues for influencing future energy demand. According to this, various measures are being put into practice as e.g.

- ▶ awareness raising projects for municipalities, e.g. info-corners for inhabitants, and
- ▶ organization of summer schools for students on energy efficiency (GIZ SMS & ORF EE, MED, UNDP,

KAS, AKREE)

As additional measures and projects the following activities have to be mentioned:

- ▶ Implementation of energy efficiency measures in 60 schools and 3 hospitals with finance through IPA funds (approx. 18 million EUR) and renovation of public buildings, ongoing activities on central and local level;

- ▶ Installation of solar collectors in student dormitories (<450 m²) and hospitals (<300 m²) between 2012 and 2014;
- ▶ Energy efficient street lighting (LED) for Pristina, Prizren and some other municipalities.

7.1.4 Association of the Units of Local Self-government of Republic of Macedonia – Municipality of Karpoš

As a significant example of national implementation practice for energy efficiency the municipality of Karpoš is providing incentives for applying of minimum values for energy consumption, related to the energy performance of buildings.

In 2012 the municipality adopted the so called “Rulebook for the measures for energy efficiency” which lays down the requirements for building permits in the area of the municipality. One of the requirements refers to compliance energy performance standards of buildings.

As an innovative approach of municipality, investors providing a building project with considerably better energy performance are rewarded with lower municipal excise tax for construction. In such a case, Karpoš provides 20% discount from taxes which equals about 3,000-5,000 EUR per building.

Due to the fact that this tax is mostly a municipal tax, the local government can decide upon height and criteria independently. After the decision of the municipality to subsidize energy efficiency of new buildings, more than 100 buildings have been constructed with higher than requested energy performance².

7.1.5 Congress of Local Authorities from Moldova – energy efficiency projects in public buildings

In Moldova, the most successful projects on energy effi-

² http://issuu.com/opstinakarpos/docs/katalog_energiefikasn.finalen_cel_e/1?e=0/4591622

ciency are implemented in public buildings. The change of windows and thermal insulation of walls are realized as the main measures. In addition measures such as efficient indoor lighting, thermal insulation of roofs and basements are experience, too. In terms of street lighting there are examples of switching two LED.

These measures are mainly financed from the National Fund on Energy Efficiency together with external financing institutions.

Energy efficiency in industry is also progressing. The UNIDO program provides with an important initiative to accelerate application of energy efficiency measures in this sector by the way of implementation of Energy Management Systems.

7.1.6 Association of Municipalities and Towns of Slovenia – ESCO-services, and further good practice

ESCO-services

Slovenia has already more than 10 years of experience with ESCO-services. The first project in the municipality of Kranj started in 2002 and is still ongoing (contract period 15 years, 2002-2017).

This project includes the renovation of 14 buildings in total: 9 elementary schools, 2 swimming pools, 1 sports hall, a city stadium and the municipalities administrative building.

As ESCO company, the company of Eltec Petrol carried out measures providing energy performance contracting (EPC) and energy service contracting (ESC). Starting from a baseline heat consumption of 9.8 GWh the ESCO guaranteed savings in heat consumption of about 3.2 GWh.

Figure 9: ESCO-serviced buildings in the municipality of Kranj



Source: KSSENA/Boštjan Krajnc

Even though the project is successful, it took about 5-7 years after the start of this project before other municipalities started new ESCO-projects.

Another good practice in ESCO-services has been realized for the University of Maribor. In this case 42 buildings are being serviced in total. The contract period is 15 years (2009-2024).

This project includes the renovation of

- ▶ 28 University buildings: 7 faculties, 2 public institutions, 1 indoor sport hall, 1 library with a heated surface of about 137,900 m² and

- ▶ 14 additional buildings: 9 elementary schools, 2 swimming pools, 1 sports hall, a city stadium and the municipalities administrative building.

Again services are provided by the ESCO Eltec Petrol, the measures carried out comprise EPC and ESC.

In this case, the ESCO guaranteed savings in heat and electricity consumption.

- ▶ Baseline heat consumption of 6923MWh, guaranteed savings of 260MWh
- ▶ Baseline electricity consumption of 4765MWh, guaranteed savings of 680MWh.

Figure 10: ESCO-serviced buildings in Maribor



Source: KSSENA/Boštjan Krajnc

Combined Heat and Power Plant (CHP) POŠ Škale

In Škale the reconstruction of the heating system has been implemented, including a switch from oil to natural gas. Most important measures were:

- ▶ The exchange of the outdated boiler with a consumption of fuel oil for heating of more than 20,000 l
- ▶ by a cogeneration heat and power system with two units (5.5 kWe and 12.5 kWh).
- ▶ An energy renovation of the building starting at an average energy demand for heating of >200kWh/

m² (in 2007), including energy efficiency measures (exchange of windows, doors, blinds)

- ▶ The application for a feed in tariff (Regulation on supports for the electricity generated in cogeneration with high efficiency).

The project was implemented by a public private partnership (for a period of 15 years). When realizing such projects including measures for a long period of time one has to consider that a reasonable decrease of costs is necessary (e.g. school savings about 2,000 Euro/year).

Figure 11: CHP POŠ Škale



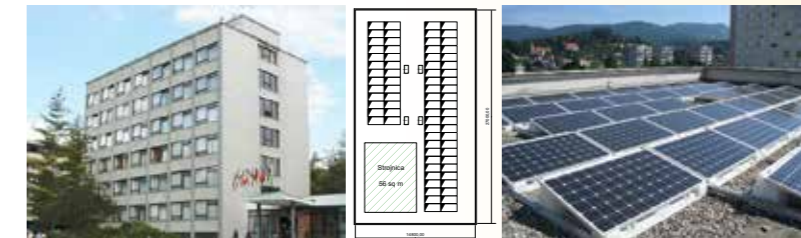
Source: KSSENA/Boštjan Krajnc

Photovoltaic roof installation on a municipal building

In the municipality of Velenje a roof installation of PV was realized in 2010. The selected contractor of the measure (BI-SOL, d.o.o.) realized a PV plant with a capacity of 17.4 kWp and an estimated production of 17.4 MWh electricity. The yearly feed-in gains add up to about 6,600 EUR per year.

For the realization of this PV installation a co-operation of the municipality with an energy agency was necessary in order to fulfil the current legal restrictions for owners of PV plants (as applicant for feed-in tariff).

Figure 12: PV roof at a municipal building in Velenje



Source: KSSENA/Boštjan Krajnc

Independent street lighting system ESUS

Another good practice example represents the independent street lighting system “ESUS” which is powered from PV and a vertical wind turbine on top. The lamp post includes GEL batteries providing with operational autonomy.

Due to integrated motion detectors lighting is only provided when needed, making use of this technology (PIR

motion sensors) the system covers lighting up to 3 days. According to recent development and experiences it is possible to supply up to 5 more lamps by one ESUS lighting pole (PV, vertical wind turbine and GEL batteries).

Figure 13: ESUS system



Source: KSSENA/Boštjan Krajnc

Technical specifications

- ▶ PV panel: 136 W, dimensions: 5.49 m x 0.39 m x 0.004 m
- ▶ Vertical wind turbine: rotor diameter of wind turbine: 1.25 m, height of the rotor: 1.1 m, Mass of wind turbine: 25.5 kg

- ▶ 35 W LED lamp

This system can be used in locations without near connection to electricity grids, e.g. in parks and pedestrian areas. With a price of about 4,000 EUR per lighting pole, the system pays off for longer distances to the electricity grid).

8. SUMMARY AND CONCLUSIONS

The assessment of the survey provided from NALAS TF EE members as well as the discussions at the workshop have shown that the status of implementation of the identified key topics for local implementation in the EU directive on energy efficiency (2012/27/EU) widely differs between the topics.

The above mentioned key topics for local implementation have been identified according to corresponding references to the local level in the EED (proposals, requirements) and/or supposed reasonable room for action for local governments in the course of the implementation of EED. According to these assumptions, following key topic have been identified for the implementation at local level:

- ▶ Building renovation and exemplary role of public buildings
- ▶ Procurement of energy efficient products and services
- ▶ Obligation schemes on energy efficiency
- ▶ Efficiency of heating and cooling networks/CHP

In terms of building renovation and exemplary role of public buildings, the findings show that the requirements of EED are widely implemented and transposed to national law or at least ongoing in all countries. The stage of implementation mainly is dependent on the status of the respective country as a member of EU or a member of Energy Community (with a later start of implementation).

Overall, obligations concerning the energy performance of public buildings have to be met also by local governments in their role as owner of municipal buildings. Concerning binding quantitative targets of building renovation (per year), it seems that the requirements

have not been forwarded to local governments of the countries in general. Auditing and certification of public buildings is widely implemented. In addition, local governments are often required to elaborate various municipal energy efficiency action plans or concepts.

Support from the central government is provided through financial support in a number of countries e.g. by specific energy efficiency or sustainability funds. Another type of support is provided through intermediary institutions at national or regional level, mainly energy agencies. These entities usually provide a broad range of services according to the needs of local governments.

The issue of energy efficient public procurement has been implemented as a binding requirement in the EU member states (as required from the EU directive). In some of the EU candidate and potential candidate countries public procurement with focus on energy efficiency is partly recommended for authorities, but not implemented as a binding requirement yet, except for Serbia.

The discussion on energy efficient public procurement at the workshop highlighted the difficulties to consider long term lifecycle-costs versus investment costs, the need for knowledge building and training of responsible persons as well as for minimum requirements and rules for public procurement. Some of the NALAS member associations are involved in research projects in order to share good practice examples and transfer know-how.

The topic of obligation schemes for energy distributors and/or retail energy sales companies to achieve energy savings is implemented only in some countries whereas the implementation of other strategic policy measures is more common. Overall, obligation schemes have been combined with energy efficiency funds, which may re-

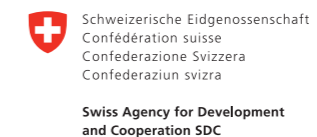
spectively have to be endowed with financial means if quantitative targets are not achieved. In general, implementation of obligation schemes and the achievement of a cumulative end-use energy savings target by 2020 is a major challenge for all countries. New experiences will have to be collected and good approaches should be exchanged regionally. Nevertheless, obligation schemes for energy utilities and distributors combined with energy efficiency funds seem to be an interesting approach also for other South Eastern Europe countries in the future.

Overall, the required assessment on efficiency of heating and cooling networks and CHP has been elaborated at national level in all EU member states, as well as in Moldova. Up to now, there is only little knowledge on the results at local level. Due to the situation that only few municipalities are owners or shareholders of heating/cooling networks in South Eastern Europe, the topic seems less relevant for implementation at local level at the moment.

In conclusion, the workshop has shown broad ongoing implementation and partly similar approaches mainly in the field of building renovation and the exemplary role of public buildings. In terms of the other key topics for local implementation – energy efficient public procurement, obligation schemes and assessment on efficiency of heating and cooling networks – a large share of requirements of EED has been implemented only by thereof obligated states (EU members). Whereas all other states are in an earlier stage of implementation or before implementation, yet. Other than public procurement, local governments have not been involved in this implementation of energy efficiency requirements intensively up to now. Nevertheless, local authorities are informed about the opportunities and apply for funds if available to foster investment in energy efficiency and renewable energy sources in their territories.

Due to the fact that the members of Energy Community will have to follow implementation of EED in the near future, the activities of Energy Efficiency Coordination Group (EECG)³ are highly important for all signatories of the Energy Community Treaty. Information about the outcomes (and possibly involvement of NALAS TF EE members at EECG-meetings) would support the preparation of coming energy efficiency issues and requirements to be implemented as well as knowledge transfer between countries. Before the background of the general challenge of implementation of EED requirements in the whole NALAS operational region, in-depth information on the ongoing discussion at European level as well as exchange of good practice examples and experiences may add to the ongoing discussion and knowledge transfer in the course of NALAS Task Force on Energy Efficiency. Hence, this also might help to overcome the identified lack of human capacity and knowledge at local level in future.

³ https://www.energy-community.org/portal/page/portal/ENC_HOME/AREAS_OF_WORK/Instruments/Energy_Efficiency/Task_Force_Coordination_Group



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