



# Study on 2030 overall targets (energy efficiency, renewable energies, GHG emissions reduction) for the Energy Community

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- The core objective of this project is to **develop a methodology and to conduct a quantitative assessment to show pathways for achieving calculated 2030 energy efficiency (EE), renewable energies (RE) and greenhouse gas emissions (GHG) reduction targets** that can be expected under aligned framework conditions in the Energy Community Contracting Parties.
- For doing so, we will **align our methodologies to the approaches used for energy and climate target setting at EU Member State level**, and we make use of specialised energy system models for assessing certain impacts related to that.

- Step 1 – Methodology for 2030 target setting
  - Including Methodology for EE, RE and GHG targets
- Step 2 – 2030 Target Calculation
  - Including data collection, actual target calculation, and overview on targets
- Step 3 – Evaluation of the impact of target fulfilment

## Energy modelling

- The impacts arising from the uptake of renewable energies and of a possible future carbon pricing for the electricity sector are explored using two models with complementary strengths and focal points:
- Electricity Market Model - EEMM (REKK)
- Green-X model (TU Wien)
- Both models have been applied in combination within the SEERMAP project to undertake a detailed assessment of electricity futures for South Eastern Europe.

# 2020 and 2030 Target Setting at EU level

Study on 2030  
overall targets

## Renewable Energy Targets

## GHG Emission Reduction Targets

## Energy Efficiency Targets

2020

### Top-down approach:

- Flat rate / GDP based approach

### Top-down approach:

- Split between ETS (EU bubble) and Non-ETS (national targets)
- Allocation of national targets reflects difference in economic welfare

### Mix of top-down and bottom up allocation:

- EE Directive prescribes strong measures to be implemented
- National allocation plans reflect country-specifics / preferences

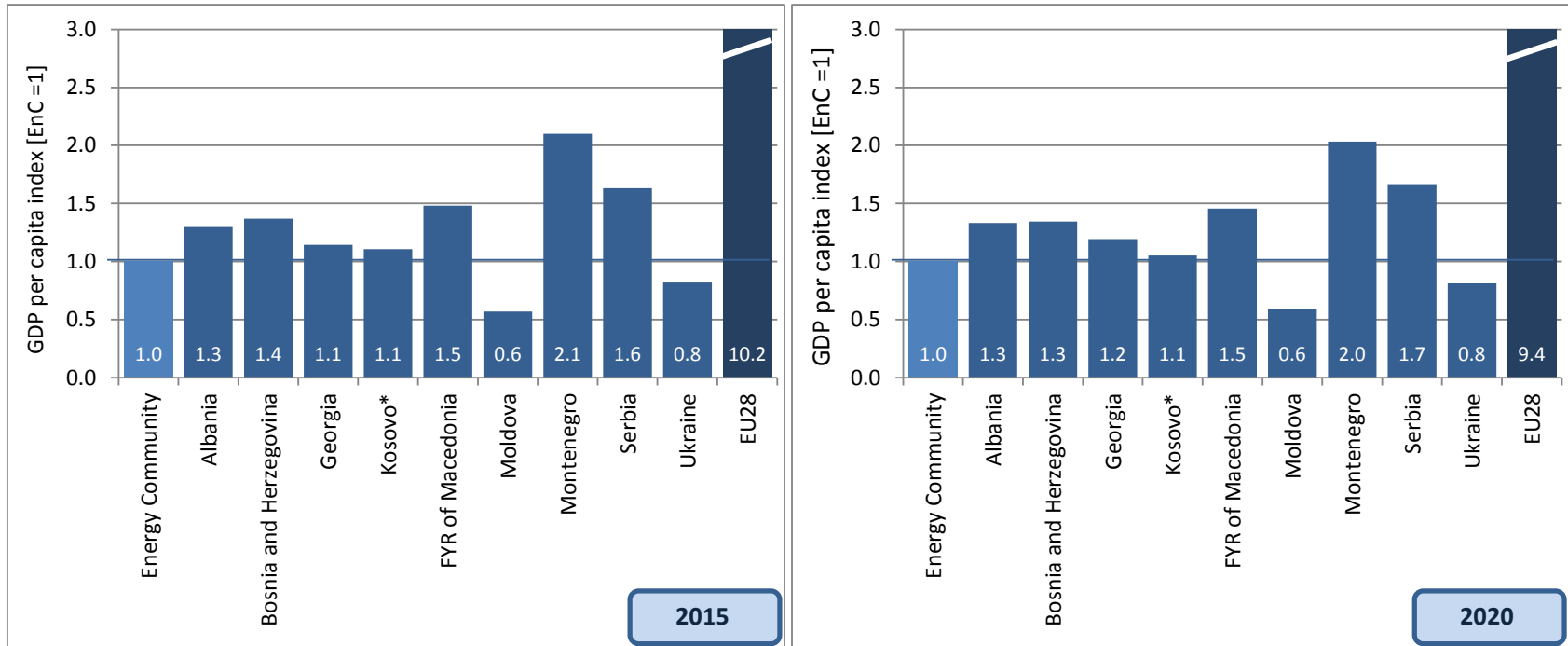
2030

- Only EU target set by now, bottom-up approach proposed

- Same approach as used for 2020

- Only EU targets set by now (but same approach is likely to be followed)

## ■ A closer look at economic welfare: GDP per capita in the European Union and the Energy Community



**Figure 1: The GDP per capita for the year 2015 and 2020.**

- The GDP per capita for the years 2015 and projections for 2020 in relative terms compared to the Energy Community average (Energy Community = 1)

(Source: EUROSTAT, 2018; IMF, 2018)

- A closer look at economic welfare:  
**GDP per capita in the European Union and the Energy Community**

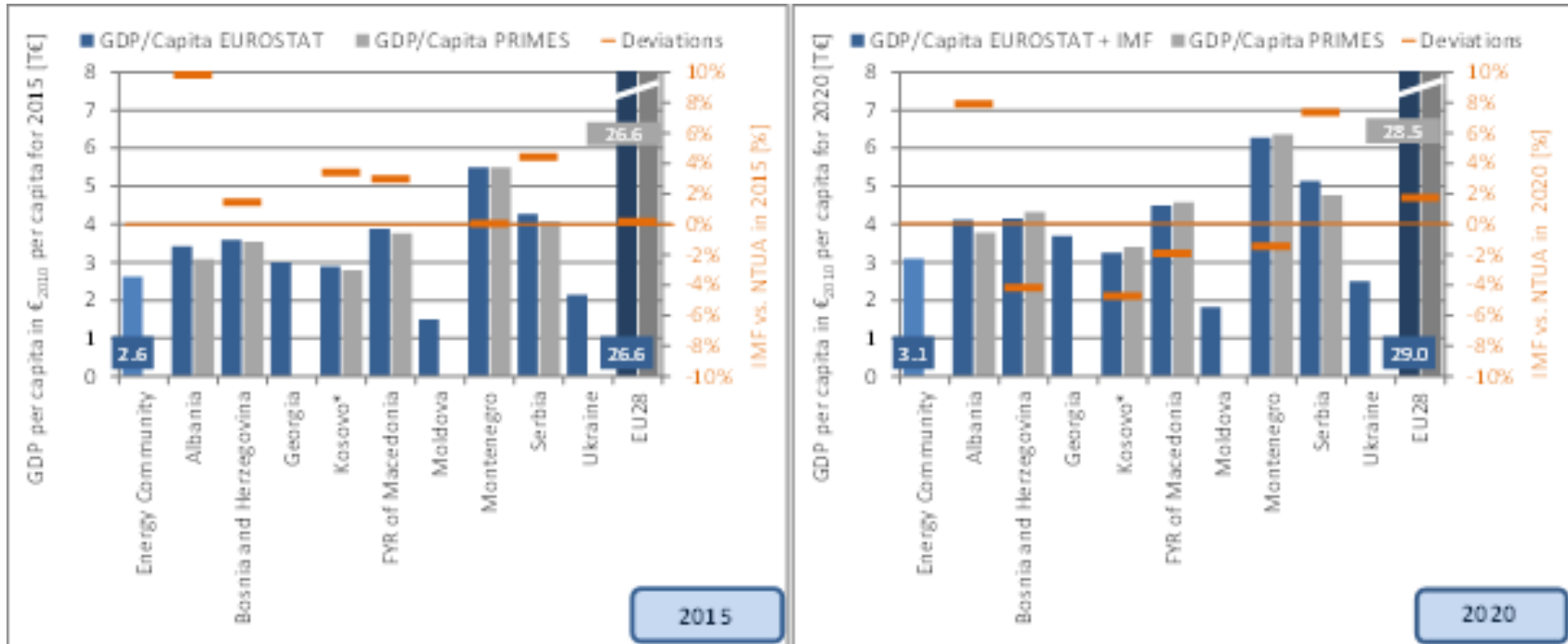


Figure 1: GDP per capita 2015 and 2020: a comparison of actual data (EUROSTAT) and data used in modelling (PRIMES) for 2015 (left) and implications on 2020 projections (right)

(Source: EUROSTAT, 2018a; IMF, 2018; NTUA, 2012)

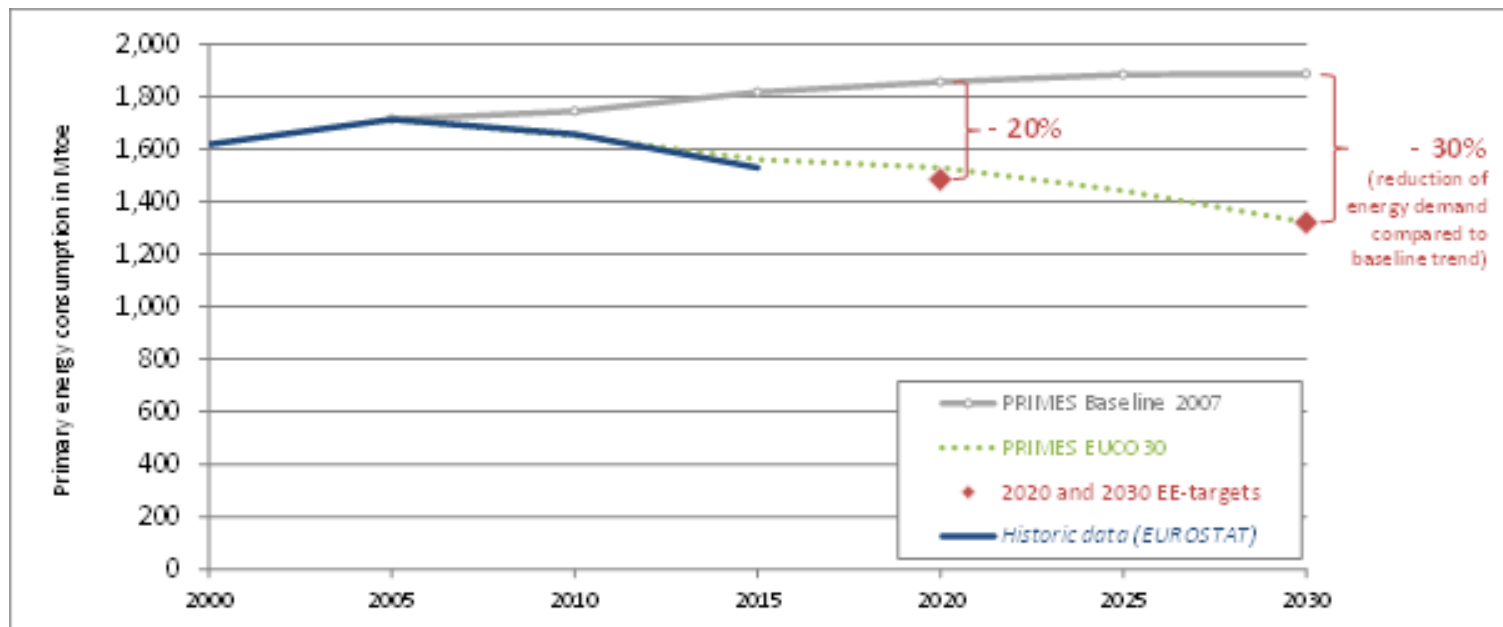
# A closer look at the target setting approaches

Study on 2030 overall targets

## Approach for 2030 EE target setting within the Energy Community

### EU level

In November 2016, the EC proposed an update to the Energy Efficiency Directive, including a new EU energy efficiency target for 2030, and measures to update the Directive to assure target achievement in the 2030 timeframe. A binding energy efficiency target at EU level of 30% is proposed for 2030. However, there are no binding targets established so far at the level of individual Member States.



**Figure:** EE Targets on total primary energy supply for Montenegro and the Energy Community region according to assessed target setting options are shown as blue bars. The relative decrease compared to the CPs BAU primary energy supply in 2030 is shown in orange.

(Source: Energy Strategy, 2012; EUROSTAT, 2018; IEA, 2018; IMF, 2018; NEEAP, 2017; NEEAP, 2018; NTUA, 2012; own calculations)

## Approach for **2030 EE target setting** within the Energy Community

### EnC level

We propose to establish an energy efficiency target at EnC level in-line with the EU target for 2030:

- For **2030** an agreement has been taken on the overall ambition level – i.e. a 30% reduction of energy demand compared to (2007) baseline conditions shall be achieved by 2030 at EU level.
- This corresponds to a net increase of the EE effort by **10 percentage points** at EU level.
- Consequently, if the **same ambition** would be followed at EnC level, **an increase at EnC level from 20% by 2020 (i.e. the expected EE target at EnC level) to also 30% by 2030.**
- This would imply that all CPs have to commit themselves to various measures. These measures were already formulated in the Energy Efficiency Directive 2012/27/EU as well as in the 4th edition of the Energy Communities Legal Framework (EnC, 2017) for the energy efficiency target for the year 2020, and for 2030 proposed updates are foreseen as published by the European Commission in the proposed recast of the EE Directive as part of the EC's winter package (see section 3.1 for more details).
- We further **propose benchmarks for an increase of energy efficiency for all CPs**, which is in-line with the EnC target for 2030. This means that each CP is subject to the same benchmark, *regardless of its economic welfare* – i.e. for example, **a 10% net increase in EE target from 2020 to 2030** also requires each CP to increase its EE benchmark by 10 percentage points.



# A closer look at the target setting approaches

Study on 2030 overall targets

## Approach for 2030 EE target setting within the Energy Community

EnC level

In terms of...	Primary energy supply			Final energy consumption		
Energy Supply 2030	BAU	-30% Energy Efficiency Target		BAU	-30% Energy Efficiency Target	
Contracting Party	[ktoe]	[ktoe]	[%]	[ktoe]	[ktoe]	[%]
Albania	3,157	2,210	30.0%	2,814	1,970	30.0%
Bosnia and Herzegovina	7,024	4,917	30.0%	4,293	3,005	30.0%
Georgia	8,754	6,128	30.0%	7,198	5,038	30.0%
Kosovo*	3,011	2,108	30.0%	1,729	1,210	30.0%
FYR of Macedonia	3,539	2,477	30.0%	2,468	1,728	30.0%
Moldova	7,301	5,111	30.0%	5,033	3,523	30.0%
Montenegro	973	681	30.0%	872	611	30.0%
Serbia	17,259	12,081	30.0%	10,233	7,163	30.0%
Ukraine	164,929	115,450	30.0%	81,713	57,199	30.0%
Energy Community	215,947	151,163	30.0%	116,354	81,448	30.0%

**Table: 2030 Energy Efficiency Targets for total primary energy supply**

(Source: Energy Strategy, 2012; EUROSTAT, 2018; IEA, 2018; IMF, 2018; NEEAP, 2017; NEEAP, 2018; NTUA, 2012; own calculations)

# A closer look at the target setting approaches

Study on 2030 overall targets

## Approach for 2030 EE target setting within the Energy Community

EnC level

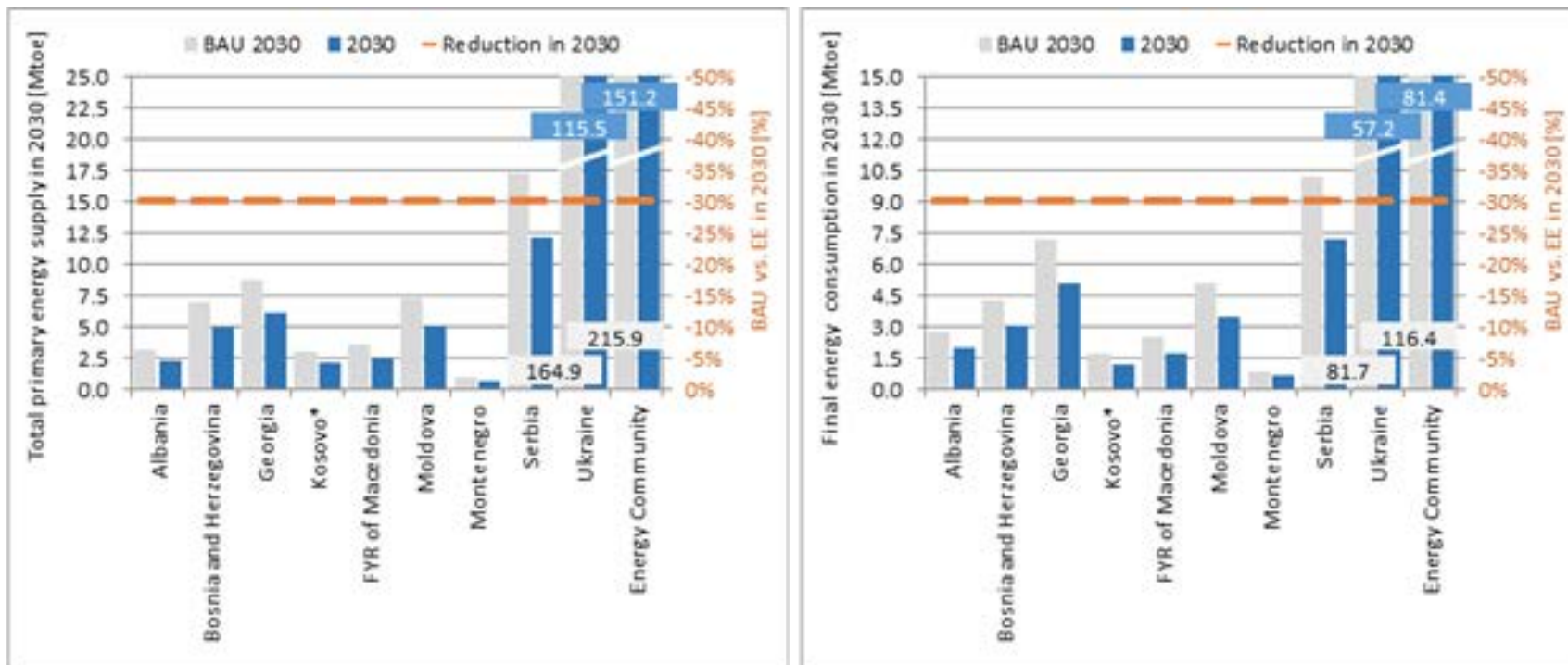


Figure: CP-specific -30% EE Targets on primary energy supply (left) and final energy consumption (right) (in absolute terms)

(Source: Energy Strategy, 2012; EUROSTAT, 2018; IEA, 2018; IMF, 2018; NEEAP, 2017; NEEAP, 2018; NTUA, 2012; own calculations)

## Approach for **2030 RE target setting** within the Energy Community

### EU level

- On 30 November 2016 the European Commission published a package of proposals for legislative measures for the time horizon from 2020 to 2030 called “Clean Energy for all Europeans” commonly referred to as the winter package. It aims at further promoting the clean energy transition while developing the internal market for electricity and thus fostering the Energy Union.
- At EU level **at this point in time (25 May 2018) this ambition level is however not yet defined:**
  - According to previous agreements taken at the European Council (cf. EUCO 169/14) the proposal exists to increase the RE share from 20% by 2020 to (at least) 27% by 2030.
  - This stands in contradiction with the plans postulated by the European Parliament, advocating for a more ambitious 2030 RE target in size of 35%.
  - As pragmatic way forward for our target calculation exercise we take the assumption that the **2030 EU RE target would be set to 30%** (as RE share in gross final energy consumption). This corresponds to a net increase by 10 percentage points at EU level.

## Approach for **2030 RE target setting** within the Energy Community

### EnC level

- In brief, we propose to apply the **same increase of the RE share at EnC and at EU level**. This method can be classified as a **flat rate approach**. Thus, according to our approach the overall RE effort at EnC level would be fully aligned to the European Union.
- As starting point for establishing a methodology for 2030 RE target setting we **take a closer look at the overall Energy Community** and elaborate on the ambition level concerning future RE deployment. Thus, if the same ambition would be followed at EnC than as at EU level, the RE share at EnC level would have to increase from 16.3% by 2020 (i.e. the expected RE share at EnC level if all CPs would reach their binding 2020 RE targets) to 26.3% by 2030.
- As a next step, **the aggregated effort (at EnC level) needs to be broken down to national entities**. In line with above, postulating a flat rate increase of the RE share at EnC level, we follow a flat rate approach to give an indication of distributing efforts to CPs. This means that under that approach all CPs have to increase their RE targets for 2020 by the same percentage points – similar to the overall net increase at EnC level.

# A closer look at the target setting approaches

Study on 2030 overall targets

## Approach for 2030 RE target setting within the Energy Community

EnC level

RE share in gross final energy demand	Historical and 2020 RE shares		Proposed approach for 2030 RE targets: Flat rate approach		
	Year	2009	2020	2030	increase vs 2020
Contracting Party		[%]	[%]	[%]	[pp]
Albania		31.4	38.0	48.0	10.0
Bosnia and Herzegovina		22.0	40.0	50.0	10.0
Georgia		32.3*	35.0	45.0	10.0
Kosovo*		18.2	25.0	35.0	10.0
FYR of Macedonia		17.2	28.0	38.0	10.0
Moldova		4.4	17.0	27.0	10.0
Montenegro		39.4	33.0	43.0	10.0
Serbia		21.2	27.0	37.0	10.0
Ukraine		2.2	11.0	21.0	10.0
Energy Community		6.9**	16.3	26.3	10.0

\* For Georgia the calculated share for 2014 is shown, as there is no detailed historic data available for 2009.  
 \*\* The RE share for the whole Energy Community area in 2009 includes Georgia, with an assumed RE share of 31.45% at that point in time

**Table: RE Targets and historic shares**

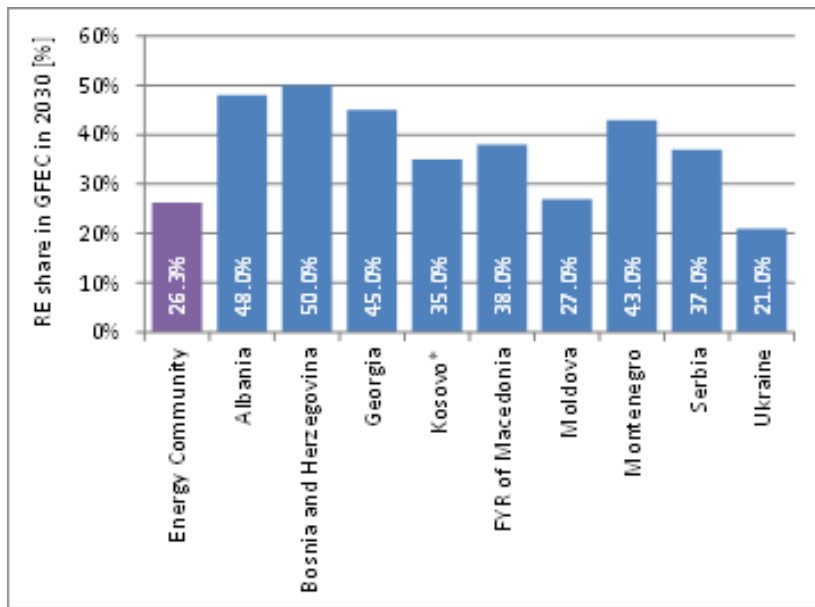
(Source: EUROSTAT, 2018; IEA, 2018; NTUA, 2012; own calculations)

# A closer look at the target setting approaches

Study on 2030 overall targets

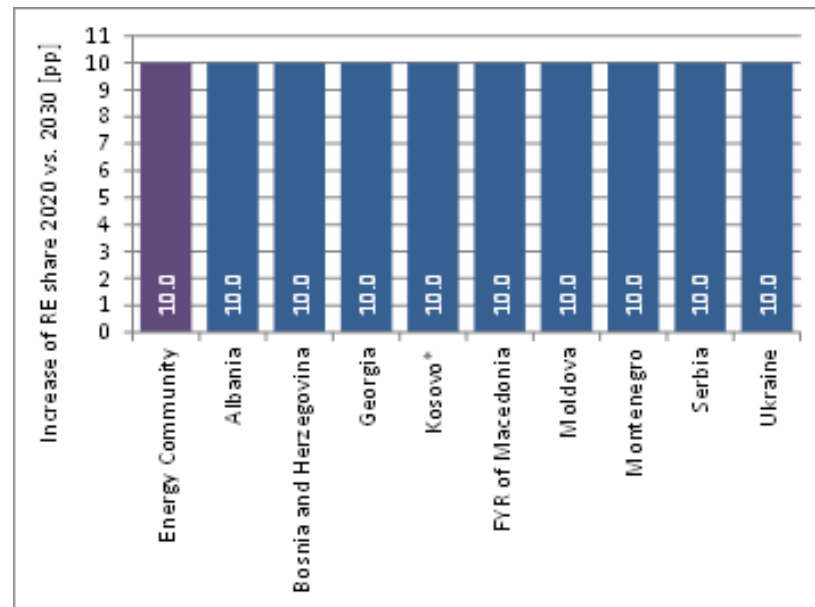
## Approach for 2030 RE target setting within the Energy Community

### EnC level



**Fig.: 2030 RE Targets for all CPs and the EnC region according to the proposed target setting approach (i.e. a flat rate approach).**

(Source: EUROSTAT, 2018; IEA, 2018; IMF, 2018; NTUA, 2012; own calculations)



**Fig.: Resulting RE share net increase between 2020 and 2030 for all CPs and the EnC region according to the proposed target setting approach (i.e. a flat rate approach).**

(Source: EUROSTAT, 2018; IEA, 2018; IMF, 2018; NTUA, 2012; own calculations)

**Energy Efficiency:** an agreement has been taken on the overall ambition level for 2030 – i.e. a 30% reduction of energy demand compared to (2007) baseline conditions shall be achieved by 2030 at EU level. This corresponds to a net increase of the EE effort by 10 percentage points at EU level. Consequently, if the same ambition would be followed at EnC level, an increase at EnC level from 20% by 2020 (i.e. the expected EE target at EnC level) to also 30% by 2030. This would imply that all CPs have to commit themselves to various measures.

**Renewable Energies:** we follow a similar concept as outlined for Energy Efficiency: According to the proposed flat rate approach it is assumed that the 2030 RE target at EnC Level is in-line with the increase of the RE ambition at EU level, i.e. where a net increase of the RE share from 2020 to 2030 by 10 percentage points appears feasible following the ongoing debate on the individual proposals for a legislative framework in the 2030 context. Furthermore, to distribute the RE effort at EnC level across CPs the same net increase of the RE share would then be set also for all CPs – i.e. a flat rate increase of the RE ambition across the whole EU and the EnC.

## Thanks for your attention!

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