Study on 2030 overall targets

(energy efficiency, renewable energies, GHG emissions reduction)

for the Energy Community

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Core objective

- 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.

General approach

- 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

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	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)

Key aspects

- **A closer look at economic welfare:**

GDP per capita in the European Union and the Energy Community

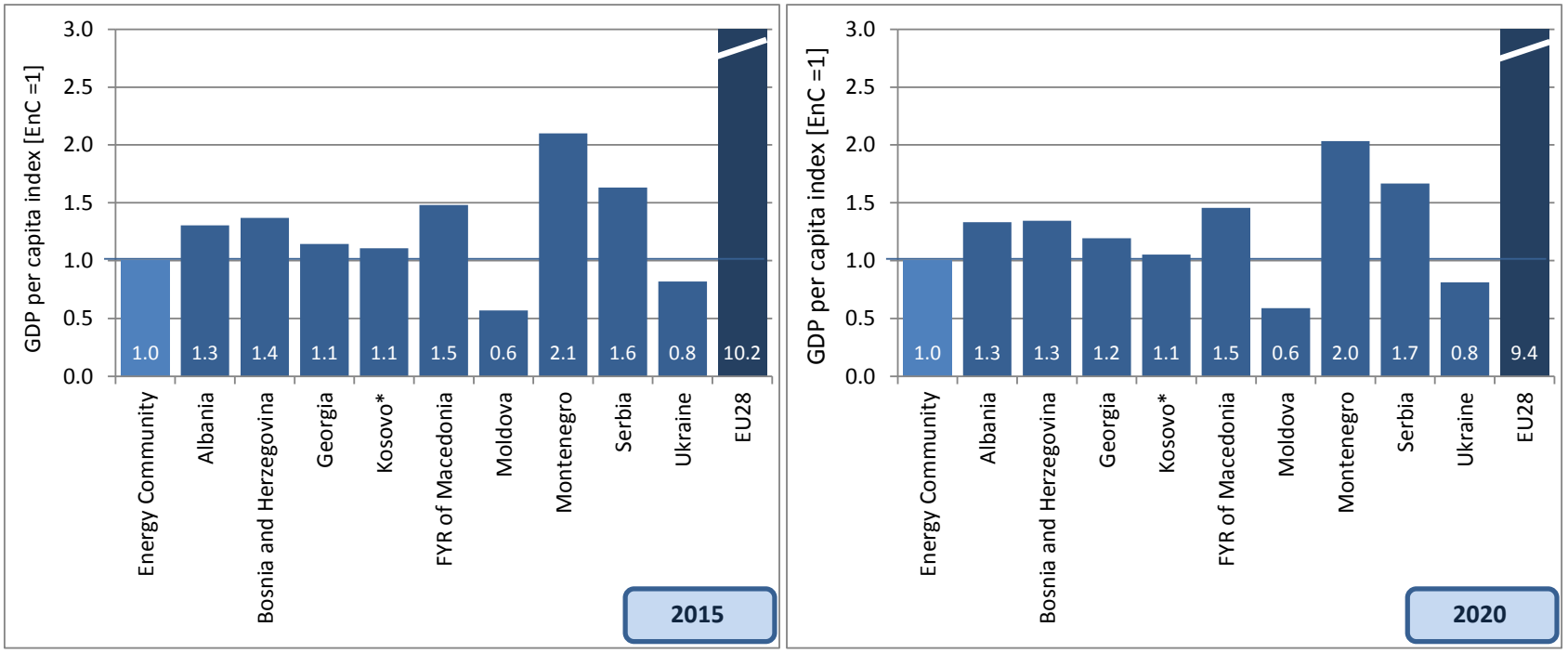

Figure 1: The GDP per capita for the year 2015 and 2020.

- *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 the target setting Methodologies

Options for **2030 RE and EE target setting** within the Energy Community

- As starting point (**step 1**) for establishing a methodology for 2030 RE and EE target setting we **take a closer look at the overall Energy Community and elaborate on the ambition level concerning future RE deployment and EE development**.
- Two different approaches appear suitable to determine the ambition in increasing the deployment of renewable energies and the ambition level regarding energy efficiency at Energy Community level:
  - ***Option 1a: Same increase of RE share and ambition of EE at EnC and at EU level***
  - ***Option 1b: Increase of RE share and ambition of EE at EnC level according to flat rate & GDP based approach***
    - *As alternative to above, the required increase might be set at a lower level compared to the EU, **respecting differences in economic welfare** that exists (on average) between the EU and the Energy Community.*
    - *For calculating the required increase one can make use here of the approach used by the European Commission for establishing national 2020 RE targets (Half of the effort is shared by a flat rate & **half is weighted by the GDP per capita indicator**).*

A closer look at the target setting Methodologies

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Options for **2030 RE and EE target setting** within the Energy Community

- As a next step (**step 2**), **the aggregated effort (at EnC level) needs to be broken down to national entities**.
- Here we propose to make use of the benchmarking options for 2030 as published by the European Commission within the "Clean Energy for all Europeans" winter package (SWD (2016) 410 final).
  - ***Option 2a: Same increase of RE share and ambition of EE at CP level as applied at EnC level (flat rate approach)***
  - ***Option 2b: Increase of RE share and ambition of EE at CP level according to flat rate & GDP based approach***
  - ***Option 3: Increase of RE share at CP level according to flat rate & GDP based approach in an integrated manner (EU plus EnC)***
    - *This option strictly follows the 2020 logic, and distributes the efforts across all CPs (and EU Member States) while maintaining the RE ambition level as predefined at EU level (i.e. currently aiming for (at least) 27% RE share by 2030)*

A closer look at the target setting Methodologies

Options for **2030 EE target setting** within the Energy Community

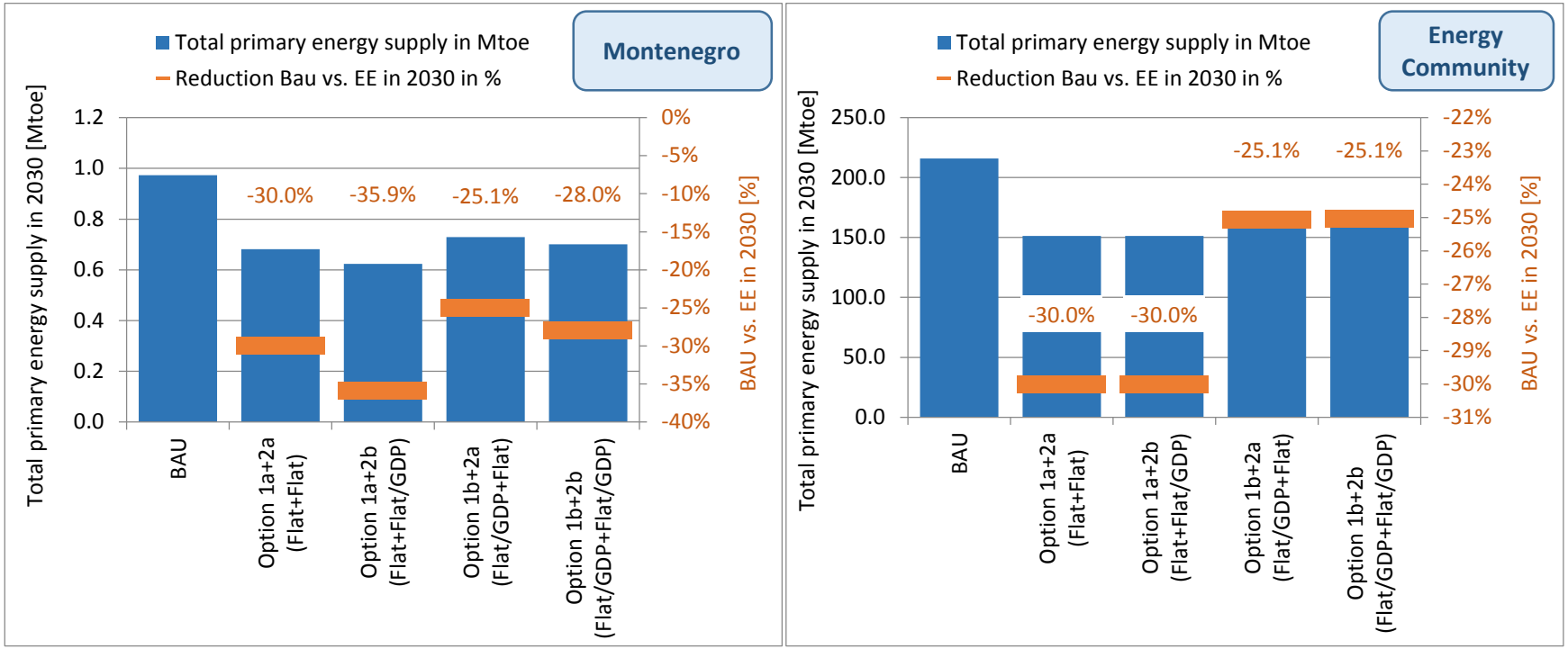

***Figure 2:** EE Targets on total primary energy supply for Montenegro and the Energy Community region according to assessed target setting options are shown as blue bars. The relative decrease compared to the CPs BAU primary energy supply in 2030 is shown in orange.*

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

A closer look at the target setting Methodologies

Options for **2030 RE target setting** within the Energy Community

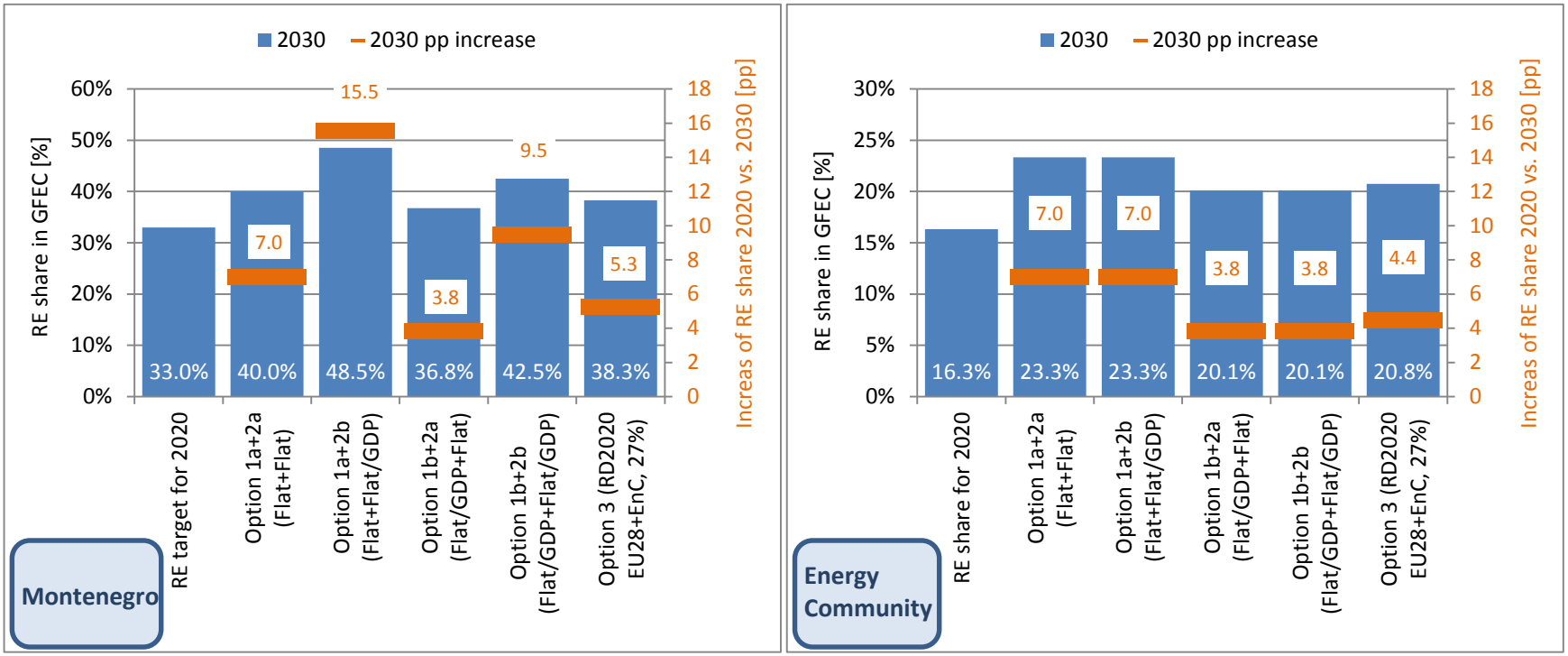

***Figure 3:** RE Targets for the share of RE in gross final energy consumption for 2030 for Montenegro and the Energy Community region according to assessed target setting options are shown as blue bars. The increase in percentage points compared to the CPs 2020 targets is shown in orange.*

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

Data requirements concerning RE and EE target setting

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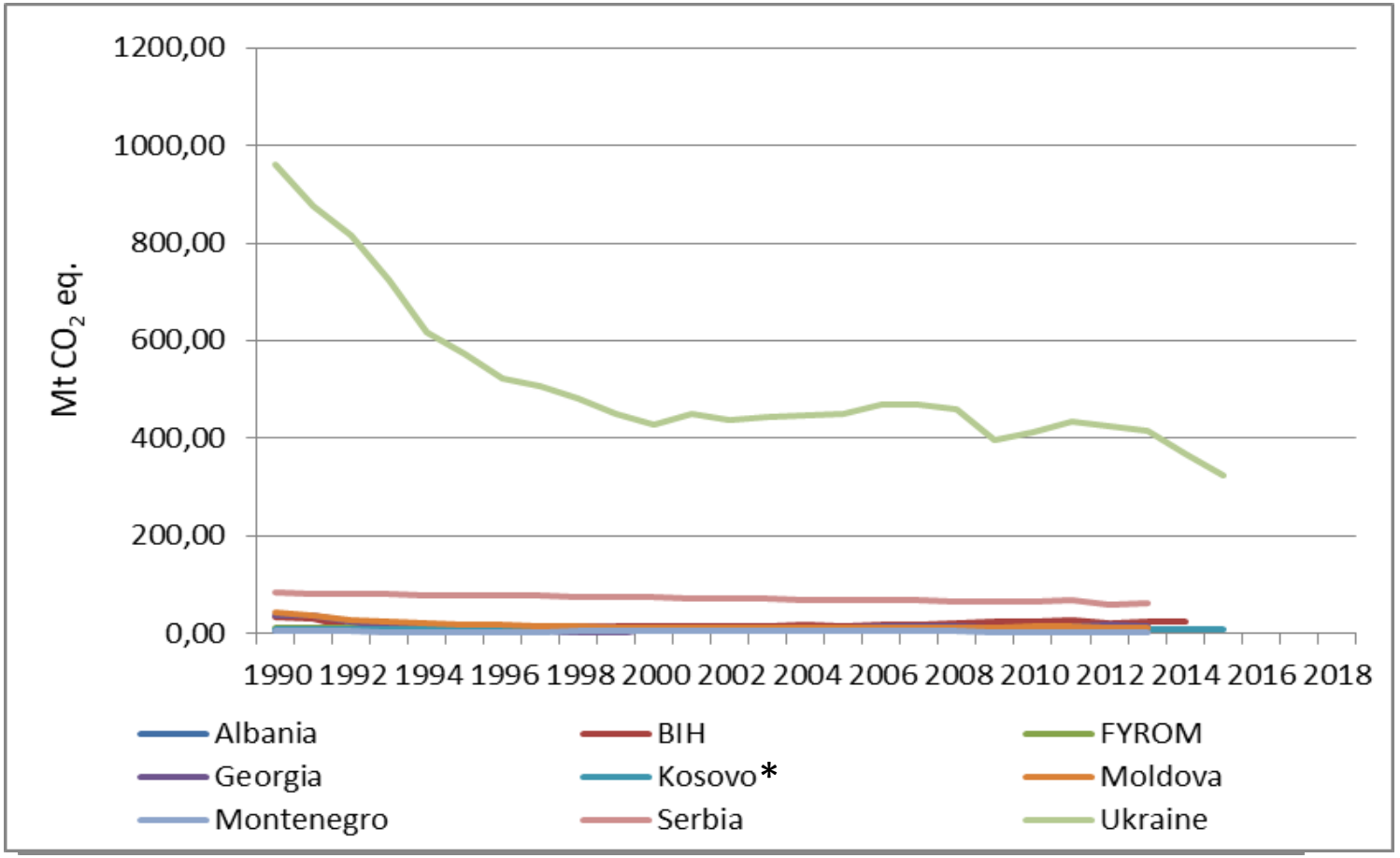
Data used for **2030 RE & EE target setting** within the Energy Community

- For 2015 structural statistical (**Population and GDP**) data is used from EUROSTAT
- For 2020 growth trends for structural statistical were used as published by the International Monetary Fund (IMF) within World Economic Outlook 2017
- EE target specific: BAU scenarios for **total primary energy supply** and **final energy consumption** in 2030:
  - *PRIMES Reference 2012*
  - *(Draft) National EEAP for 2030 for Ukraine and Georgia*
  - *National energy strategy for Moldova*
- RE target specific: Energy demand scenarios for **gross final energy consumption** in 2030 corrected for most recent data available:
  - *EUROSTAT Shares*
  - *PRIMES Reference 2012*
  - *(Draft) National EEAP for 2030 for Ukraine and Georgia*
  - *National energy strategy for Moldova*

GHG profiles of the CPs



Data sources/projections

Country	Latest year of data	Source
Albania	2009	3rd nat. Communication
Bosnia and Herzegovina	2013	3rd nat. Communication
FYROM	2009	GHG inventory 2013
Georgia	2011	3rd nat. Communication
Kosovo*	2015	IEA
Moldova	2010	3rd nat. Communication
Montenegro	2011	2nd nat. Communication
Serbia	2013	First UN biennal update report
Ukraine	2012	UNFCCC Ukraine GHG profile

National emission projections and climate plans being collected→consistent inventory of data and projections

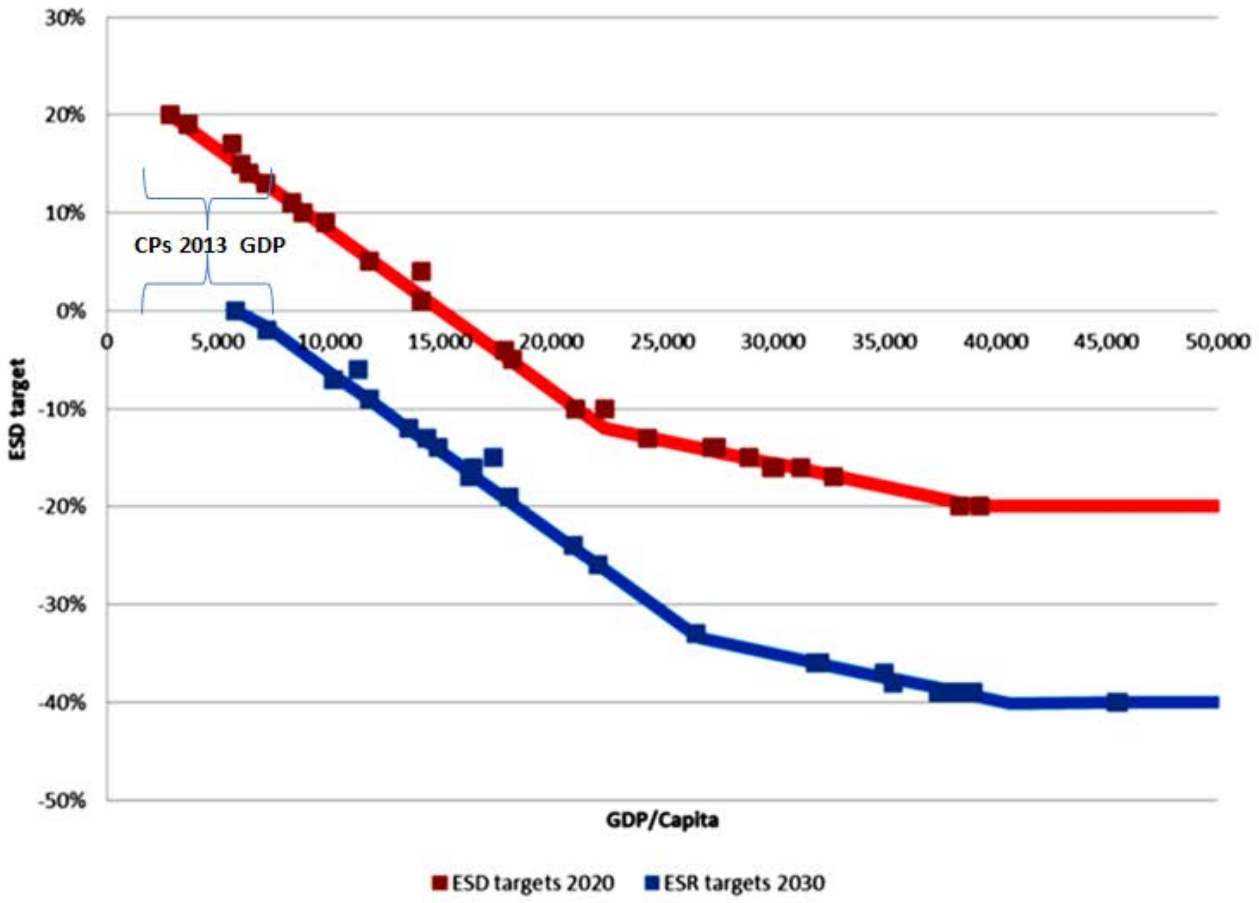
The climate policy starting points in the region

- Non-Annex 1 countries under the UNFCCC (except Ukraine). Kosovo* is no UNFCCC party.
- No binding targets under the Kyoto Protocol (except Ukraine)
- INDCs with non-binding targets for 2030 (except Kosovo*)
- Strong need for economic recovery (GDP as main indicator)
- No top-down GHG target for the region existing

Major elements of target setting

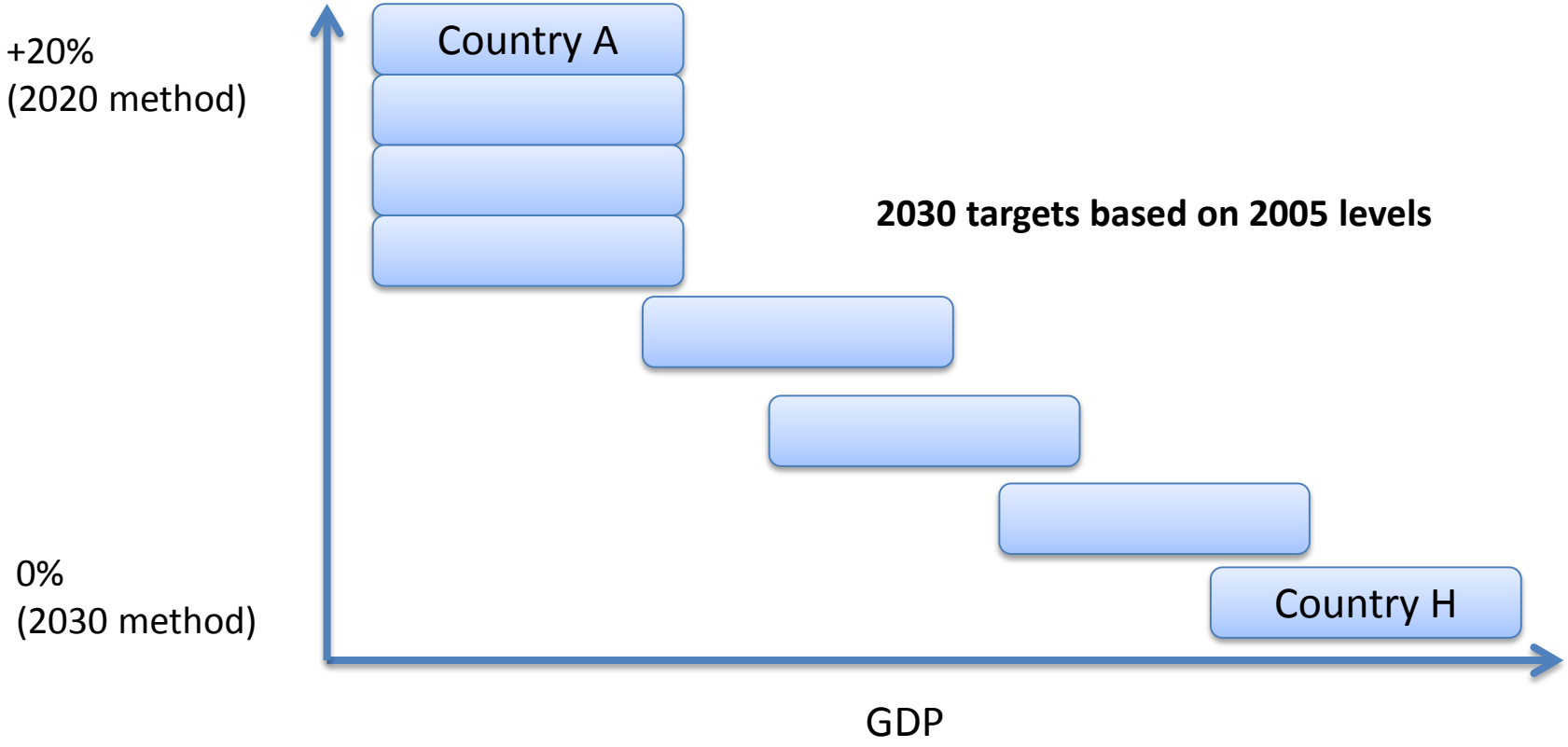
- The possible split between the ETS and non-ETS sectors
  - methodology, feasibility (absence of an ETS)
- Achievement of national targets:
  - Policy instruments available
  - Flexibilities (eg ETS/non ETS; land-use; AEA trading...)
- Inclusion of potential gases (data availability)
- Emission profiles
- (GDP)-Fairness
- Consistency between RE, EE, and GHG targets
- Consistency with INDCs and national emission projections

Option for target setting (1): 2020 and 2030 GHG non-ETS target setting as basis



Option for target setting (2): Level of ambition among CPs based on GDP

- Level of ambition within boundaries of 2020 and 2030 framework
- GDP of the CPs to determine the level of ambition



Concluding remarks

- *With respect to **energy efficiency***
  - *As starting point (step 1) for establishing a methodology for 2030 EE and RE target setting the overall ambition level at Energy Community level needs to be determined.*
  - *As a next step (step 2), the aggregated effort (at EnC level) needs to be broken down to national entities.*
- *For **renewable energy** target setting complexity increases*
  - *A two step approach comparable to the EE methodology*
  - *A modified (third) option strictly follows the 2020 logic, and distributes the efforts across all CPs (and EU Member States) in an integrated manner, while maintaining the predefined ambition level at EU level (i.e. at least 27% RE by 2030)*
- *For **GHG** the complexity further increases*
  - *We recommend not to split ETS and non-ETS sectors*
  - *The specific level of effort among CPs depends on their GDP/capita level, leading to a gradient in national ambition levels moving from the 2030 methodology based targets to the less ambitious 2020 methodology based targets*

Thanks for your attention!

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