

A Need for Investments into Decarbonization of the Western Balkan's Energy System

In the Context of the EU ETS Directive and the CBAM Regulation

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at

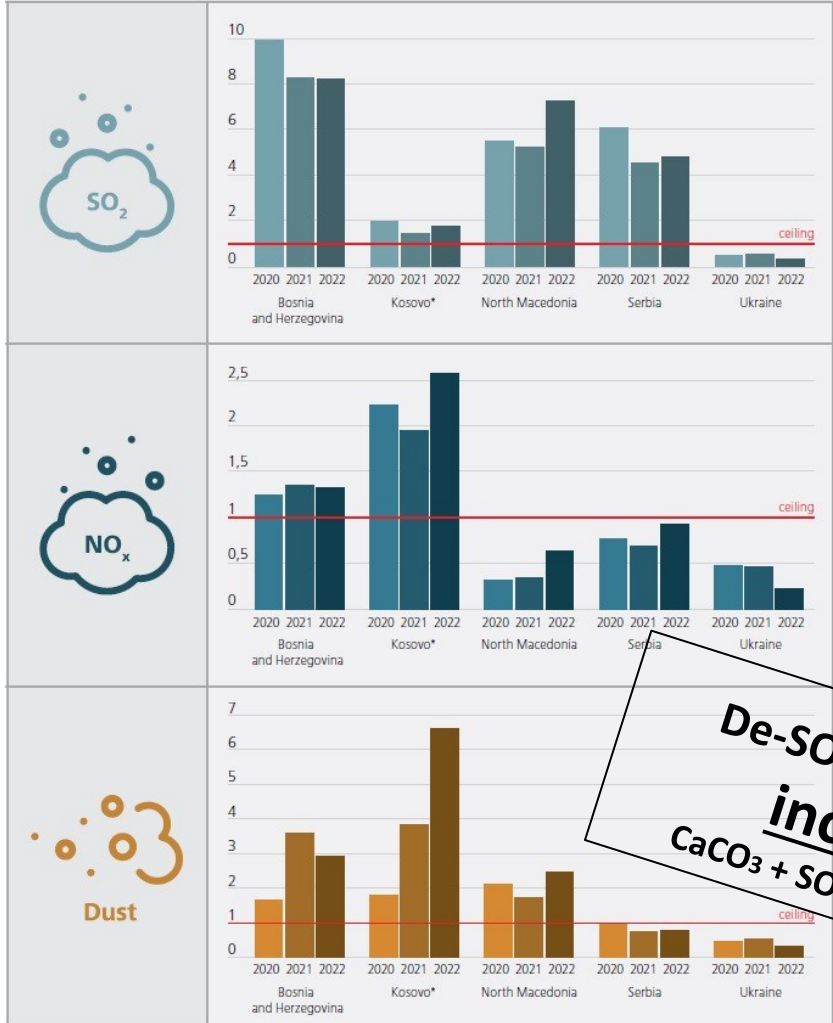
UPES Annual Conference, December 2023

What we are looking to solve?

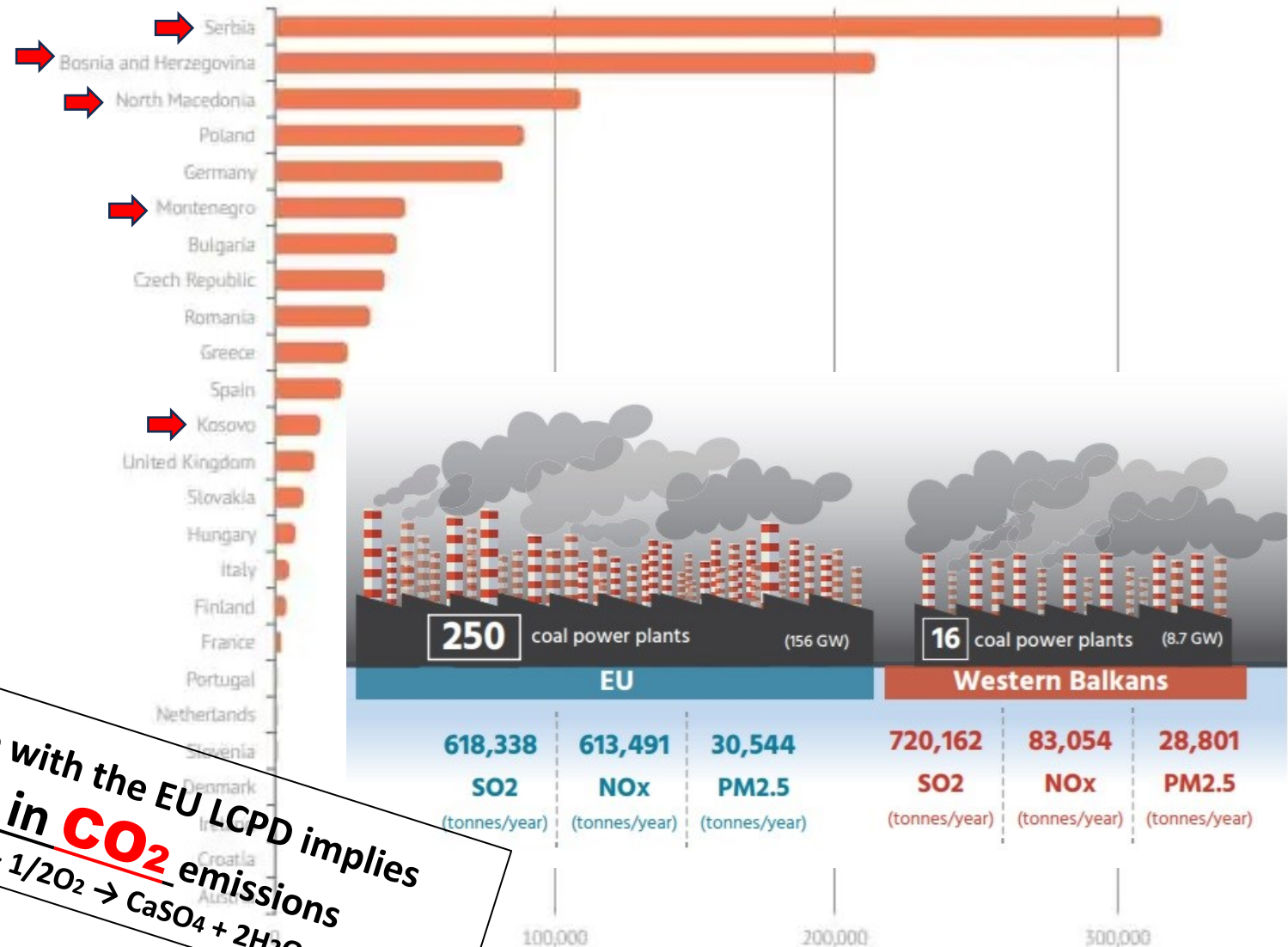
1. **STOP grand scale violation of basic human rights** by emissions from the Large Combustion Plants as soon as possible
2. **Restore the rule of law** in context of the Energy Community Treaty and the SAAs: reduce legal uncertainty
3. **Address risk of floods**, erosion and land sliding as well as climate change adaptation
4. **Remove productivity gap** that prevents EU accession in terms of economic criteria
5. **Build durable energy security** structure that is prerequisite for implementation of the Growth Agenda and the Green Agenda as well as alignment with the EU foreign policy
6. **Easy cross border disputes** (and breach of the CLRTAP convention)
7. **Eliminate natural resource rents and import dependencies** that emanate bad governance

Time for retrofits elapsed. Need to phase-out and replace while preserving security of supply

Source: <https://balkangreenenergynews.com/coal-power-stations-in-western-balkans-emit-twice-as-much-so2-as-eu-plants/>



SO₂ emissions by country in 2019



De-sox in line with the EU LCPD implies **increase in CO₂ emissions**
 $CaCO_3 + SO_2 + 2H_2O + 1/2O_2 \rightarrow CaSO_4 + 2H_2O + CO_2$

Source: Compiled and calculated by the Energy Community Secretariat.

Source: Energy Community, Energy Transition Tracker, July 2022

Source: <https://meta.eeb.org/2019/02/21/south-eastern-europe-struggles-with-chronic-coal-problem/>

Need to prevent melt down of EU accession process due to the absence of the rule of law and violation of human rights

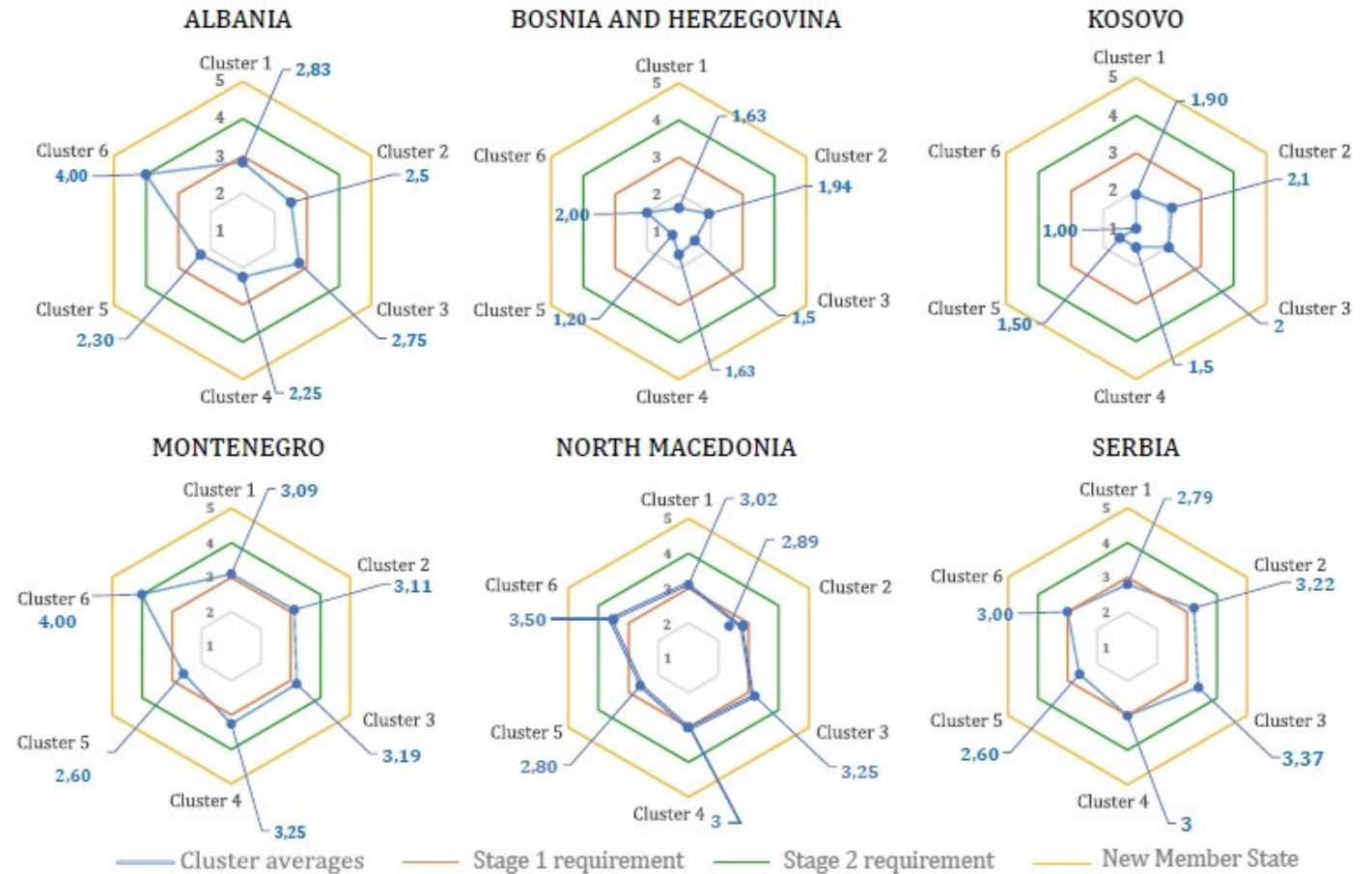
Persistent breach of the Energy Community Treaty indicates insufficient rule of law and inability to implement international obligations. Consequence is widespread violation of human rights by means of environmental impacts.

Using metrics of Staged Accession to the EU (see illustration), there is a risk of reverting indicators for cluster 4 and cluster 1 to below 2 in Montenegro, North Macedonia and Serbia while sealing these indicators for Bosnia and Herzegovina and Kosovo more firmly.

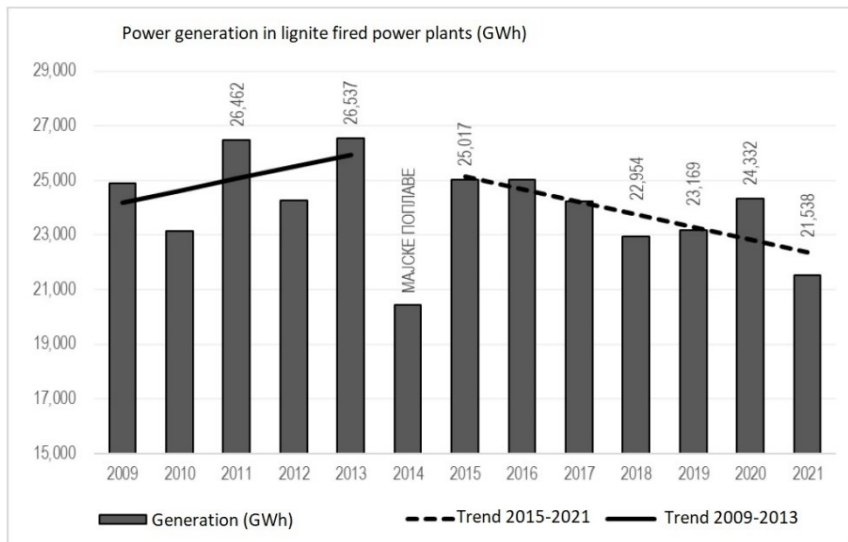
If the problem remains hidden the European Union is at risk to lose credibility as promoter of the rule of law and human rights.

Accession process is at critical risk that needs to be addressed urgently.

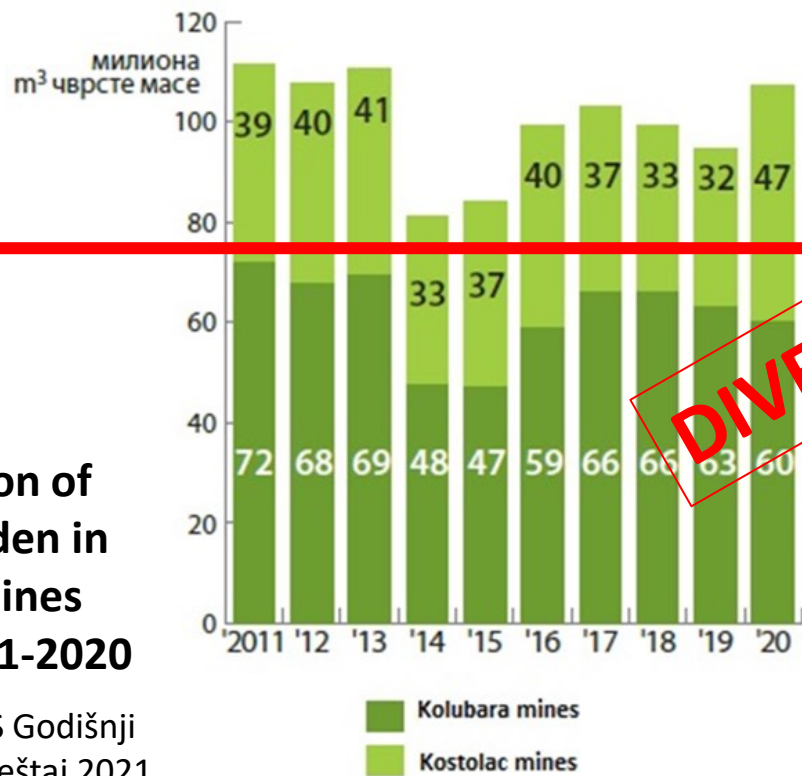
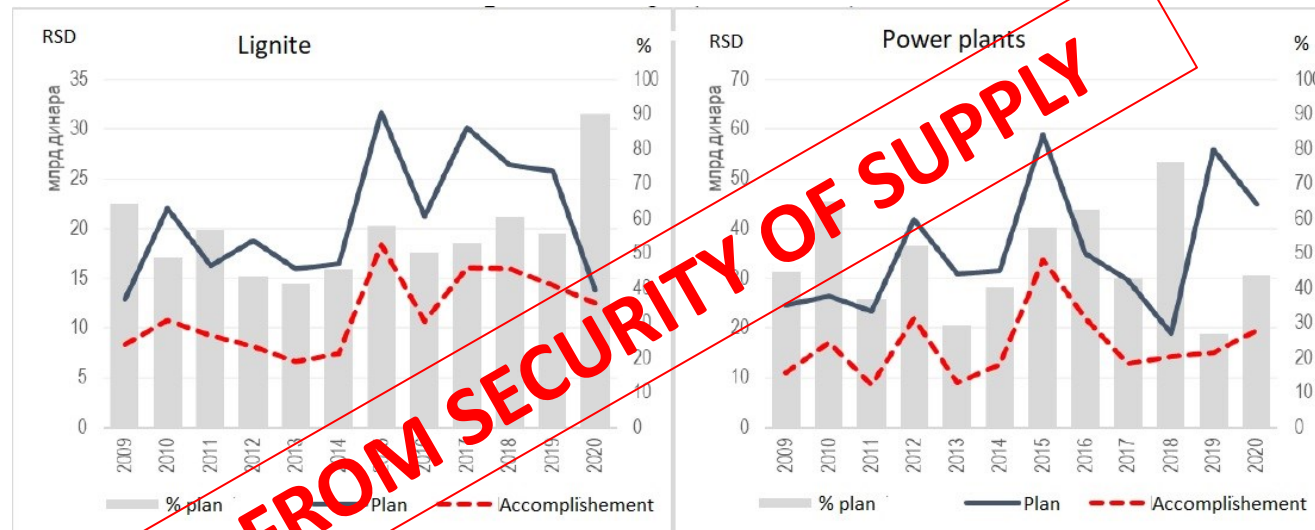
Illustration 2. Applying the Staged Accession Model on the Western Balkan candidates and potential candidates for EU membership



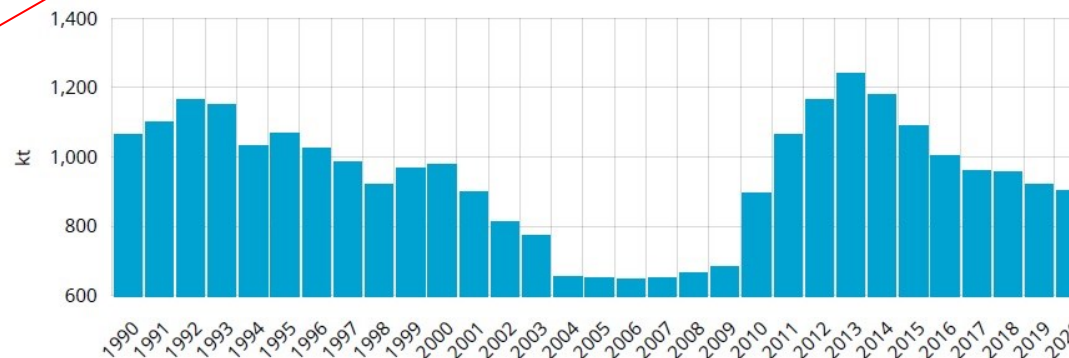
Source: <https://cdn.ceps.eu/wp-content/uploads/2023/08/Template-2.0-for-Staged-Accession-to-the-EU.pdf>



Production of electricity in thermal power plants and execution of annual investment plans in mines and thermal power plants 2009-2020 according to the report of the Fiscal Council from 2022



Domestic production of crude oil



Excavation of overburden in lignite mines EPS, 2011-2020

Source: EPS Godišnji tehnički izveštaj 2021.

Izvor: <https://www.enerdata.net/estore/energy-market/serbia/> (accessed 8/25/22, 12:11 AM)

Need to double forest densities and production



Legend

- Cities/Towns
- Capital cities
- Power plant
- Waterways
- Major rivers
- Flood extent
- State borders
- Country borders

The flood extent was produced by our Zurich flood resilience alliance member IIASA. Data was derived from the Esri Disaster Response Program and is the approximate flood zone generated from available reports (esri.com). The basemap was provided by openstreetmap.org and fao.org.

Source: "Balkan Floods of May 2014: challenges facing flood resilience in a former war zone", Zurich Flood Resilience Alliance and Post Event Review Capability (PERC), Flood resilience review 05.15

Obrenovac lignite fired power plant flooded in 2014



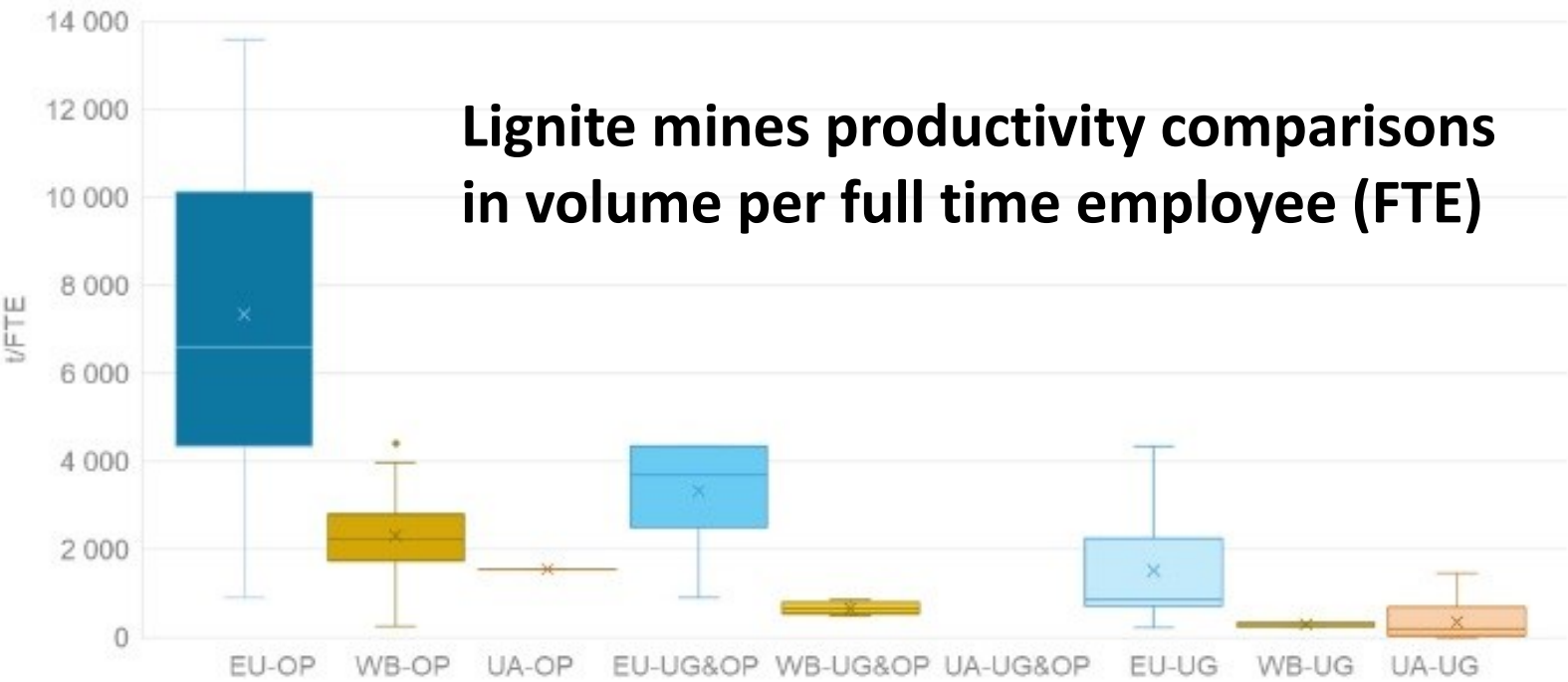
City of Pljevlja next to lignite fired power plant



Need to eliminate the industry that can not achieve comparable productivity with the EU

Productivity distribution for underground (UG), open Pit (OP) and mixed (UG&OP) mines in the EU, Western Balkans (WB) and Ukraine (UA) mines

Lignite mines productivity comparisons in volume per full time employee (FTE)



Source: JRC, 2021

European coal from open pits is TWO times higher calorific value per ton of material.

It is used in more efficient power plants providing roughly 1/3 more electricity per unit of energy input.

Assuming that volume productivity is 4.5 times higher in Europe than in Balkans, time 2 to reflect twice more energy per ton gives 9 times more energy per FTE. More efficient power plant produces (9x1.33=12)

12 times more energy per FTE!!!!

Need to double energy supply (TES) per capita while halving CO2 intensity of GDP

Low energy intensity indicates poverty

High carbon intensity of energy supply indicates difficulty of energy transition

High carbon intensity of GDP indicate climate change risks.
Croatia GDP is enhanced by maritime tourism while carbon intensity of imported electricity is not calculated

	TES/ Pop	Electricity consumption / Pop	CO2 / TES	CO2 / Pop	CO2/GDP
Unit	Toe/capita	kWh / capita	tCO2/toe	tCO2/capita	kgCO2/ 2015 USD
World	1.88	3260	2.35	4.42	0.41
OECD	4.12	8165	2.17	8.95	0.23
Albania	0.82	2277	1.84	1.50	0.34
Bosnia & Herzegovina	2.25	3973	2.98	6.68	1.26
Croatia	2.08	4205	1.80	3.74	0.28
Kosovo	1.40	2677	3.20	4.49	1.14
Montenegro	1.70	5003	2.38	4.05	0.55
North Macedonia	1.24	3136	2.69	3.33	0.65
Serbia	2.20	4728	2.92	6.42	1.03

Source: IEA, 2020

Fuel wood prices determined by the electricity price and insecurity that precludes any significant increase in electricity tariffs

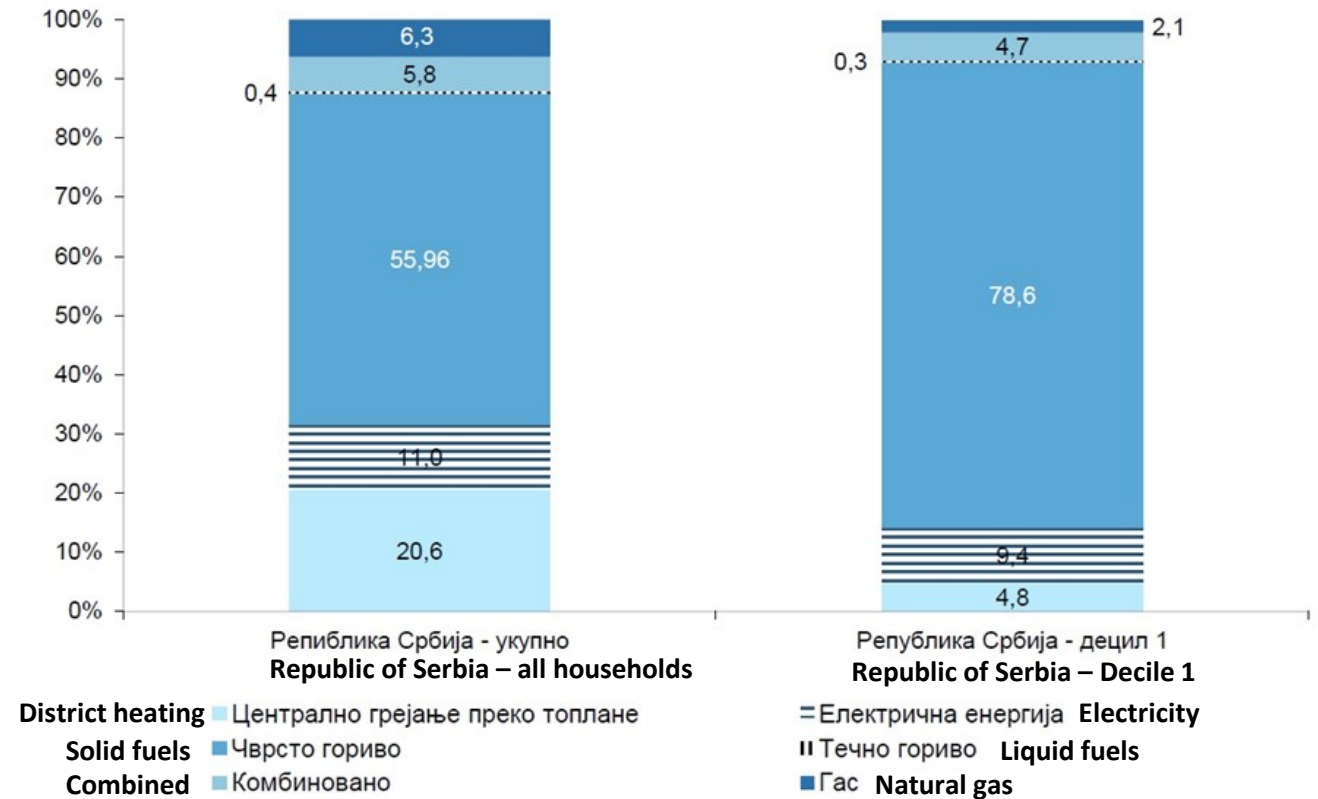
About 2/3 of all households in the region use fuel wood as a main source of energy for space heating. That is over ¾ between poor households.

Fuel wood prices determined by the electricity price and security of supply by gas and electricity.

This is critical social impediment to any increase in electricity tariffs and critical social risk in case of further problems with security of supply.

Commercial prices of electricity are already comparable to EU average while energy intensive industries are already phasing out.

Serbia households according to the mode of space heating (%)

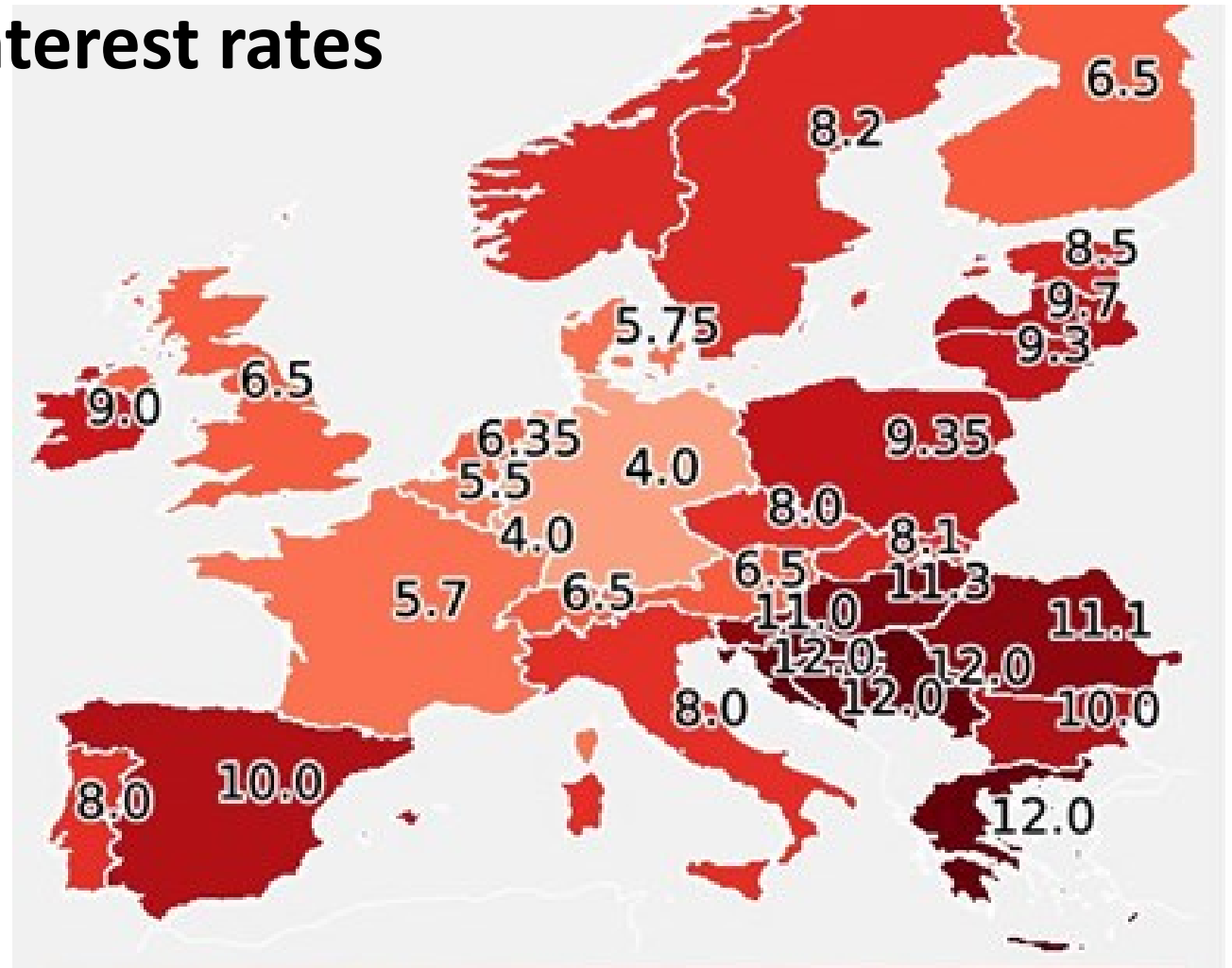


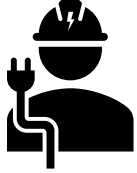
Source: Republic of Serbia, National Statistical Office, Households Consumption Survey

Need to obtain non-recourse funding at comparable interest rates

Weighted Average Cost of Capital (WACC) in % per country

Source: Bruno U. Schyska, Alexander Kies; Implications of regional differences in costs for capital on the optimal design of power systems with ambitious CO2 reduction targets" Preprint, March 2019





Grant of the EUETS allowances for coal phase-out, combined with the access to the liquid EUETS market is a critical financial instrument to underpin non-recourse financing



COMMERCIAL!
Exceeds NECP
decarbonization targets

To unlock accession process and open the European integration perspective without political nuances of full EU membership.

Prevents uncertainties of CBAM Regulation by application of Article 2(6) and the EUETS Directive Article 25

What the EU member states may expect in return?

1. **Elimination of 3,000 premature deaths** in the EU from air pollution in the Western Balkans, that is estimated to cost the EU between €3.8 and €7.0 billion each year.
2. About **€6.0 billion** bust in demand for advanced energy equipment and services from the EU to contribute to the EU re-industrialization efforts
3. Reduction of **cumulative CO₂ emissions (EU+WB) equivalent to actual NECPs**.
4. Surplus CO₂ emissions reduction in the WB handed over to EU operators at EUETS market price, allows for **five times greater GDP formation per ton of CO₂ emission** than if emissions continued in the Western Balkans.
5. **Enhanced energy security for entire European continent**
6. **Reduced political risks** in the Western Balkans
7. **Increased opportunity to deploy intermittent renewable energy** both in the EU and the Western Balkans

Declaration on Energy Security and Green Transition in the Western Balkans

“We ask the Energy Community, together with other relevant regional organisations and initiatives, to conceptualize and propose regionally co-ordinated approaches to phasing out coal fired power generation, as well as energy security mechanisms and carbon pricing schemes with the ultimate objective to join the European emission trading scheme and avoid the application of the planned carbon border adjustment mechanism (CBAM) by the European Union.”

EU - Western Balkans Summit, Berlin, November 2022