AURORA ENERGY RESEARCH

# Western Balkans Policy Overview

Public Report

19 June 2024

# Agenda

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I. About us

II. Market overview

III. Regulatory framework for renewable energy

IV. Decarbonisation

V. Aurora's expansion in the region

# Aurora provides market leading forecasts & data-driven intelligence for the global energy transition

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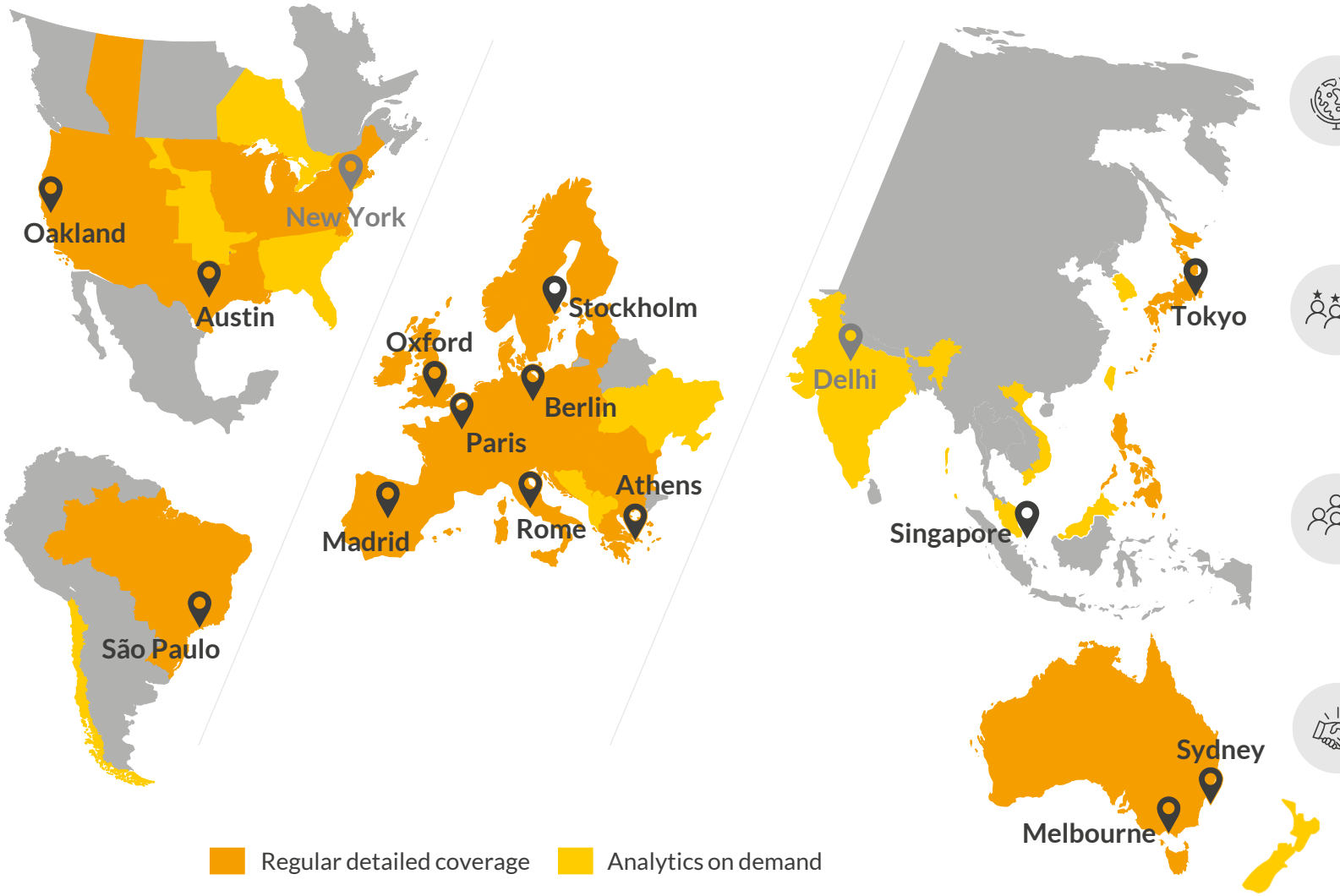
- Power markets
- Renewables & PPAs
- Storage
- Electric vehicles
- Hydrogen $H_2$
- Carbon $CO_2$
- Natural gas




**14 offices**
and two more coming soon

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market experts

**850+**
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**150+**
transactions supported in 2023

Source: Aurora Energy Research

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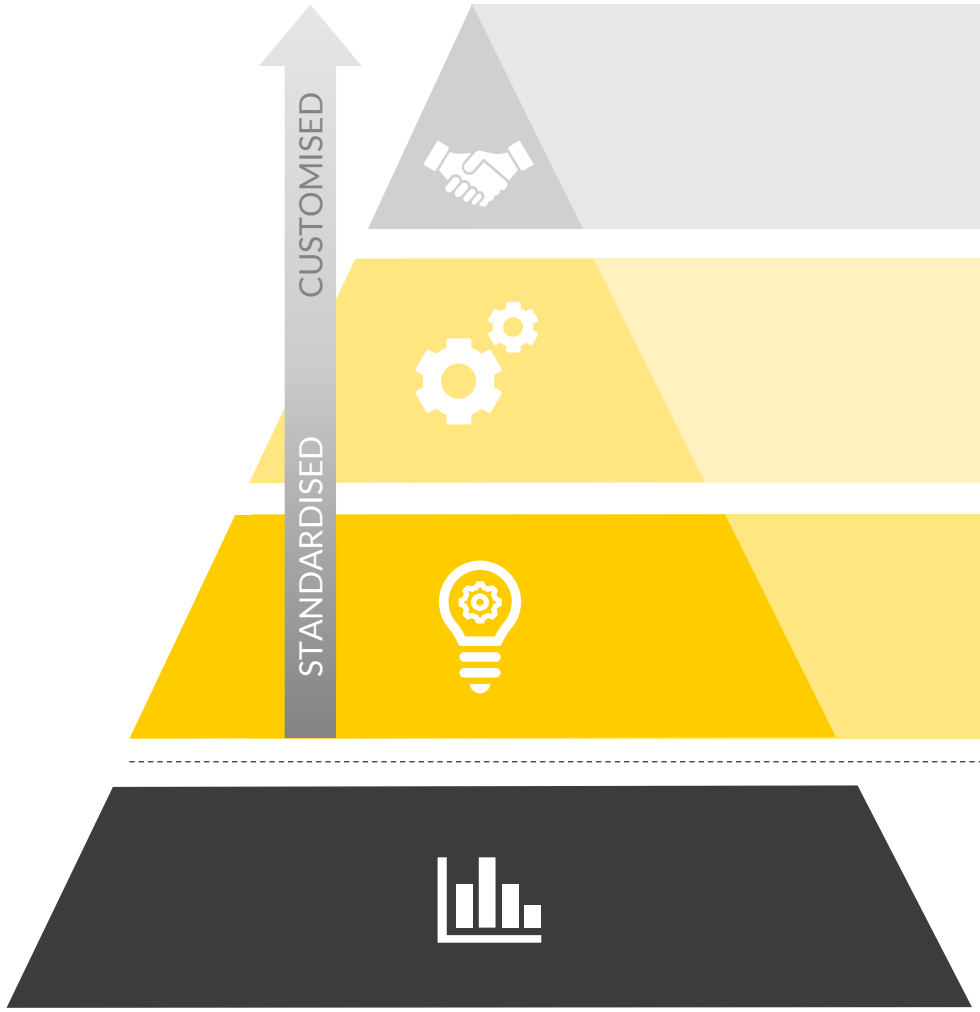


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Source: Aurora Energy Research

# Get in touch

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VI. Q & A session

VII. Aurora's expansion in the region

# As contracting parties of the Energy Community, the Western Balkans are required to align with the key energy legislation of the European Union

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## BIH

**Generation:** The three state-owned suppliers, ERS, EPBIH and EPHZHB[1], are responsible for nearly all of electricity generation in the respective entities

**Unbundling:** The unbundling of three power utilities[1] TSO, DSO has not been completed yet

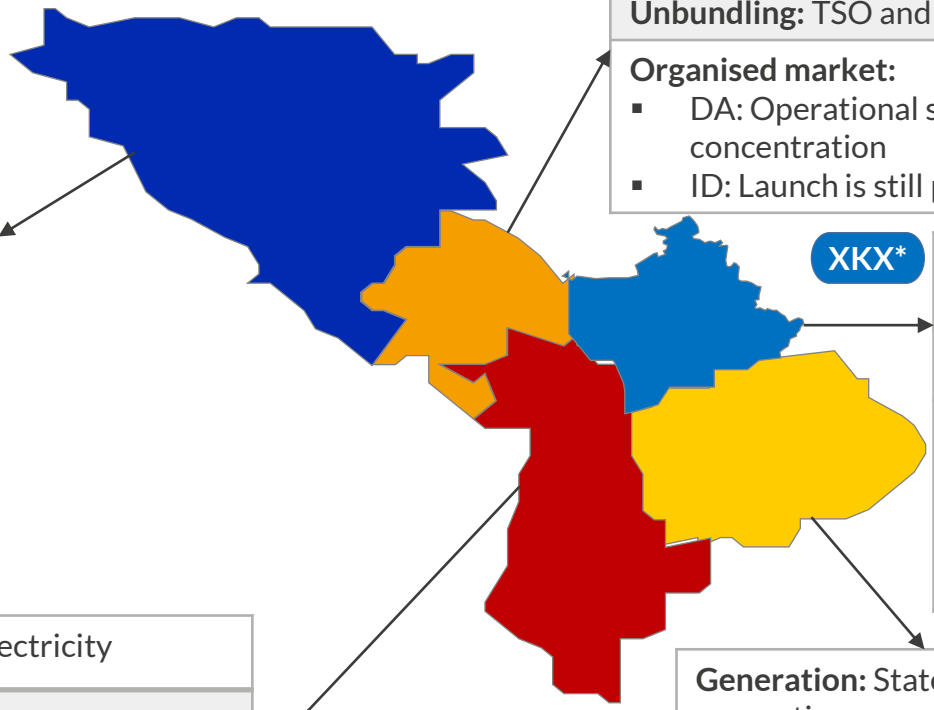
**Organised market:**
No organised market in place; the electricity market is based on bilateral transactions between licensed participants

## ALB

**Generation:** State-owned KESH[2] provides 60% of electricity

**Unbundling:** TSO and DSO are unbundled

**Organised market:**
- DA: Operational since 2023 - limited liquidity and high market concentration
- ID: Planned launch in June 2024



## MNE

**Generation:** State-owned EPCG[3] accounts for nearly all of electricity generation

**Unbundling:** TSO and DSO are unbundled

**Organised market:**
- DA: Operational since 2023 - limited liquidity and high market concentration
- ID: Launch is still pending

## XKX*

**Generation:** State-owned KEK[4] provides 98% of electricity generation

**Unbundling:** TSO and DSO are unbundled

**Organised market:**
- DA: Operational - Kosovo* joined ALPEX, the Albanian power exchange as a separate bidding zone in February 2024
- ID: Planned launch in June 2024

## MKD

**Generation:** State-owned ESM[5] provides around 65% of electricity generation

**Unbundling:** TSO and DSO are unbundled

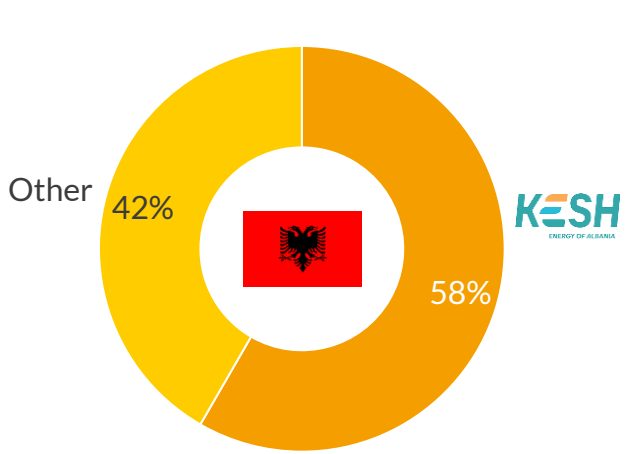
**Organised market:**
- DA: Operational since 2023 - limited liquidity and high market concentration
- ID: Launch is still pending

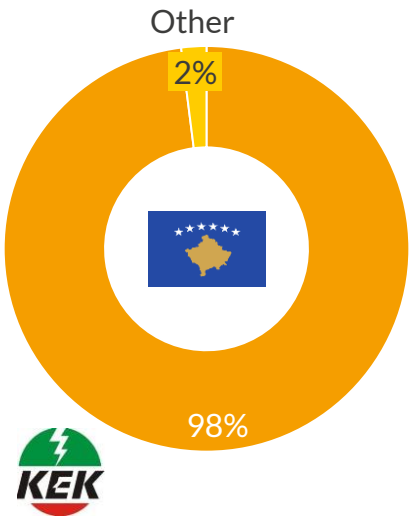
*This *designation is without prejudice to positions on status* and is in line with UNSCR 1244 and the ICJ opinion on Kosovo Declaration of Independence. 1) Elektroprivreda Bosne i Hercegovine (EPBIH), Elektroprivreda Hrvatske zajednice Herceg-Bosna (EPHZHB) and Elektroprivreda Republike Srpske (ERS). 2) Albanian Power Corporation. 3) Elektropriveda Crne Gore. 4) Kosovo* Energy Corporation. 5) Elektrani na Severna Makedonija.

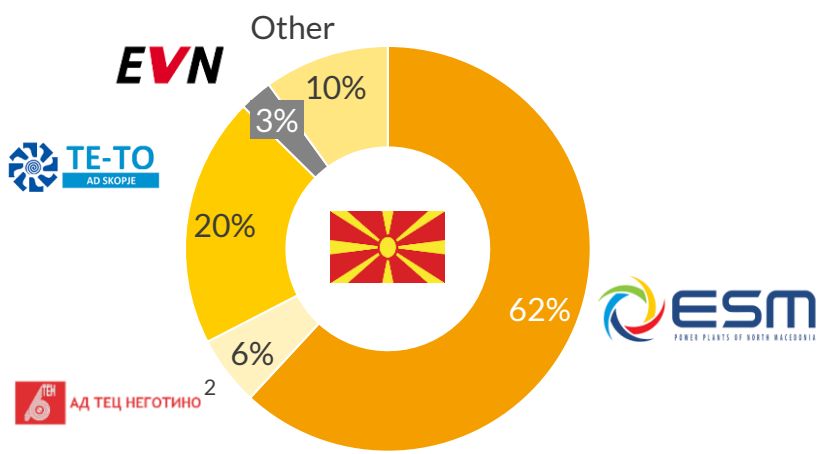
Sources: Aurora Energy Research, Energy Community

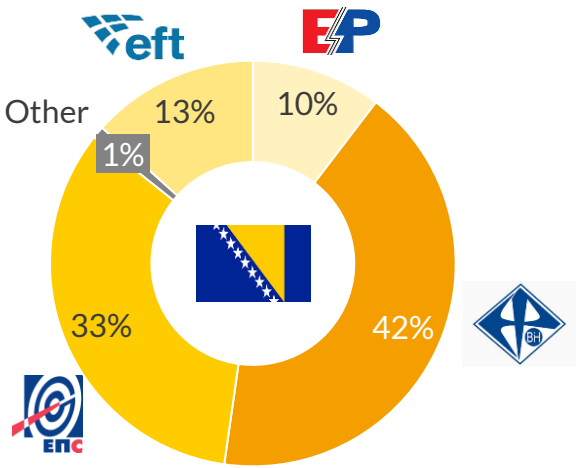
# State-owned companies still dominate the markets of the region; with the increase of RES capacity, other players' shares have been increasing

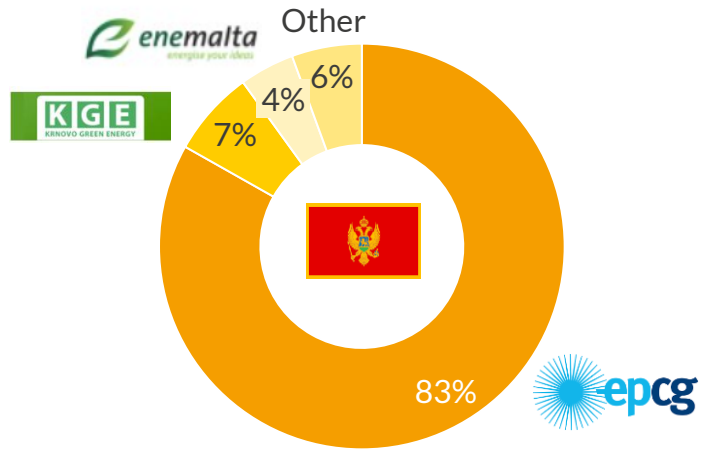
**Ownership share of electricity generation (2023)**[1]
TWh




1) For Montenegro, the data are from year 2021. There is no data available from the National Regulatory Authority or the Energy Community on generation after 2021. However, the no new utility scale RES was added from 2021 to 2023, meaning that the 2021 can be safely considered as representative for 2023. 2) JSC TEC Negotiono merged with ESM in March 2024.
Sources: Aurora Energy Research, National TSOs, National Energy Regulatory Authorites

# Coal and hydro dominate the Western Balkan's energy mix; the region's annual demand has been decreasing in the past years

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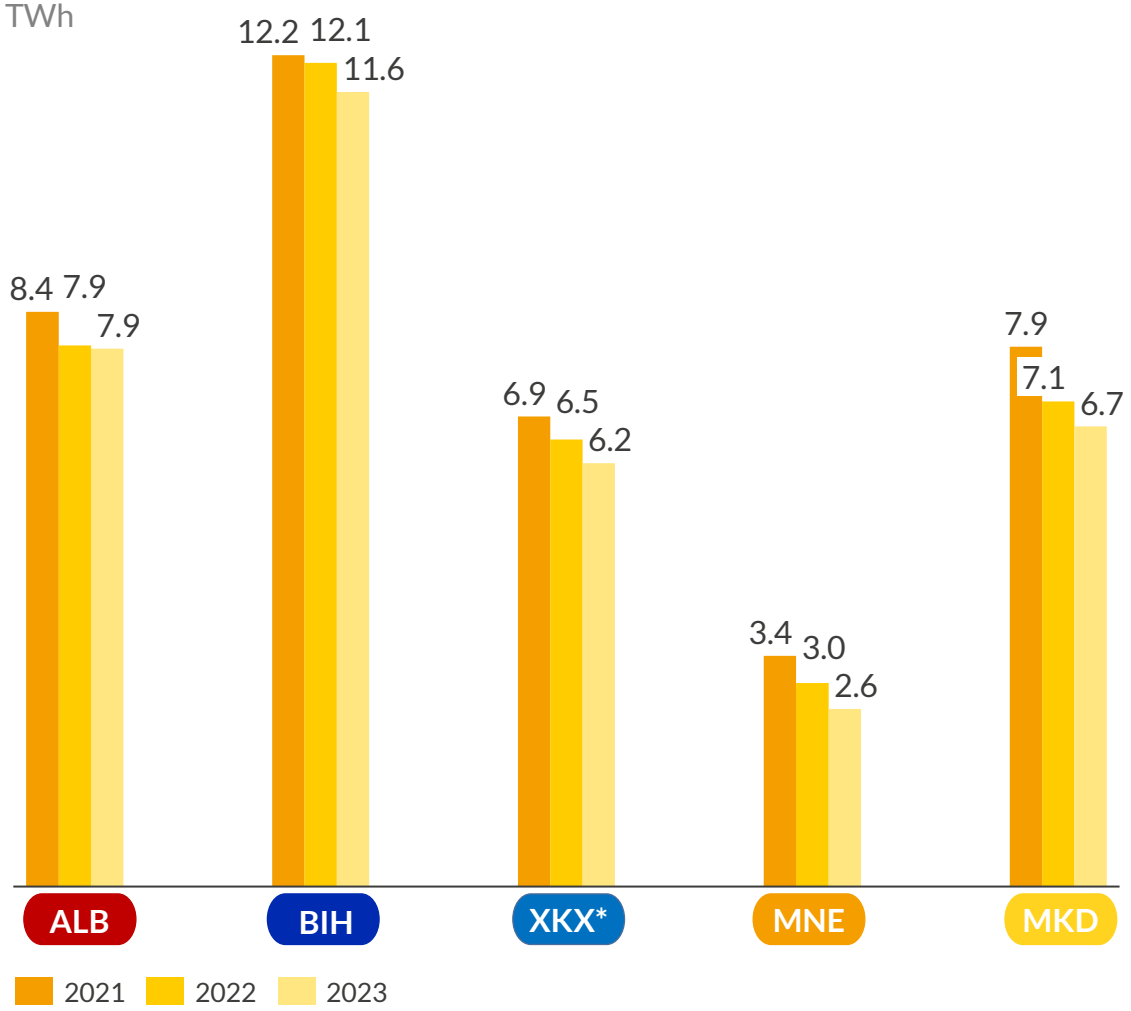
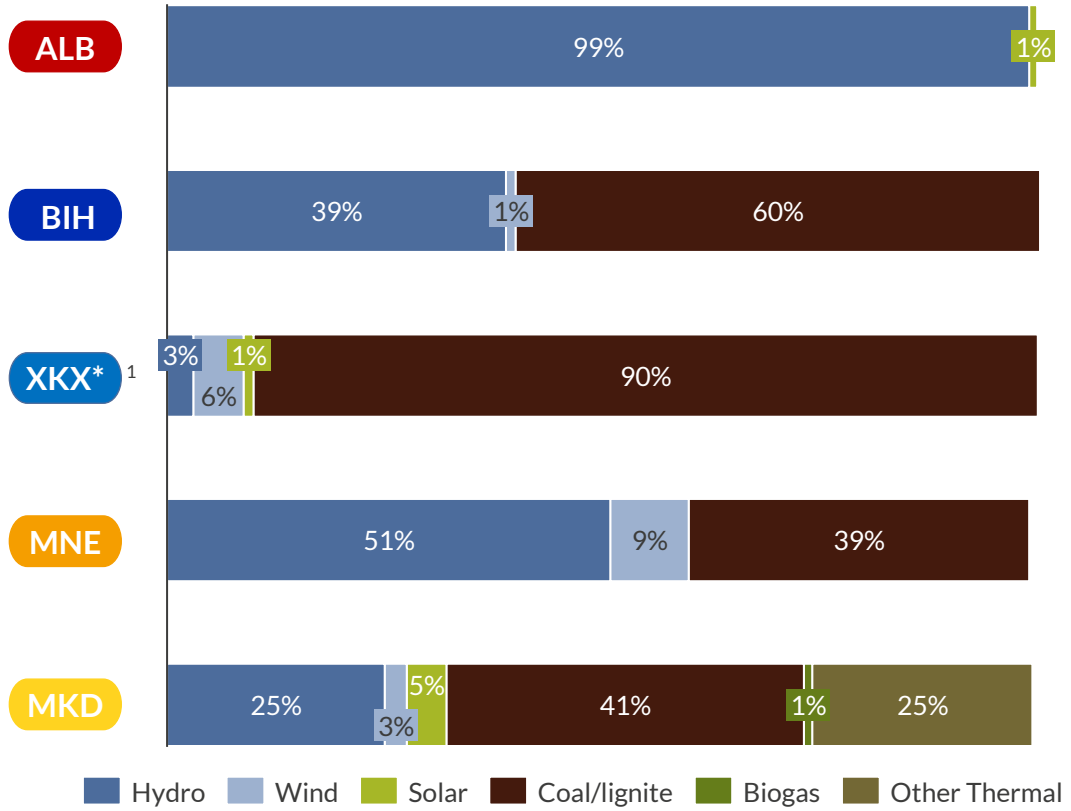
## Annual demand

TWh




## Electricity generation mix (2023)

% of TWh



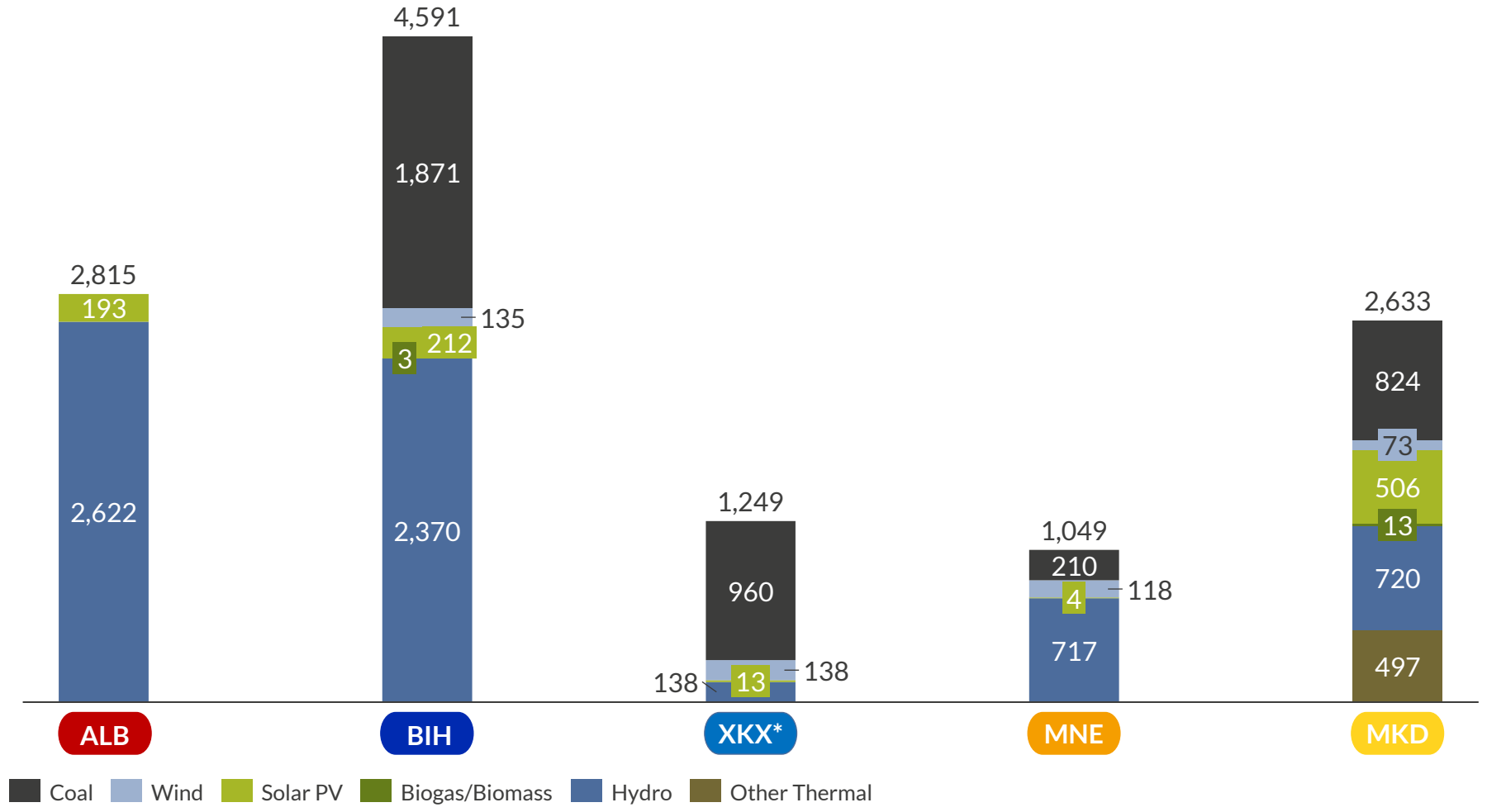

In 2023, due to better than average **hydrological conditions**, WB countries generated significantly more electricity than in previous years e.g. in Albania the average electricity production for the period 2009-2023 was 6,770 GWh, while the production in 2023 was 30% higher, about 2,026 GWh

1) Latest available data is for 2022. Note that the % split between lignite and hydro will be more favourable to hydro in 2023 due to hydrological conditions.

Sources: Aurora Energy Research, TSOs, National Regulatory Authorities for Energy, ENTSOE

# Similar to the generation mix, hydro power and coal make up the majority of the installed capacity in Western Balkans

**Installed capacity (2023)**
MW




**New capacity added in 2023:**

- **Albania** commissioned **158 MW solar and 7 MW hydro**, with Karavasta (140 MW) being the most significant addition
- **Bosnia and Herzegovina** added its **first solar plant** to the transmission network (30 MW), in addition to an 81 MW increase in distributed solar capacity; 4 MW of hydro was also added
- **Kosovo*** added a **3 MW solar** park to its network
- **Montenegro** built its **first solar power plant in 2023**, with its COD being April 2024
- **North Macedonia** built a **36 MW wind park** (Bogoslovec), and **362 MW of solar capacity**; 527 of the 531 new plants were solar PV

Sources: Aurora Energy Research , TSOs, Energy Regulatory Authorities, Energy Community, ENTSOE

# The WB's capacity to export is influenced by the highly variable availability of hydropower; interconnectivity strengthens the region's energy security

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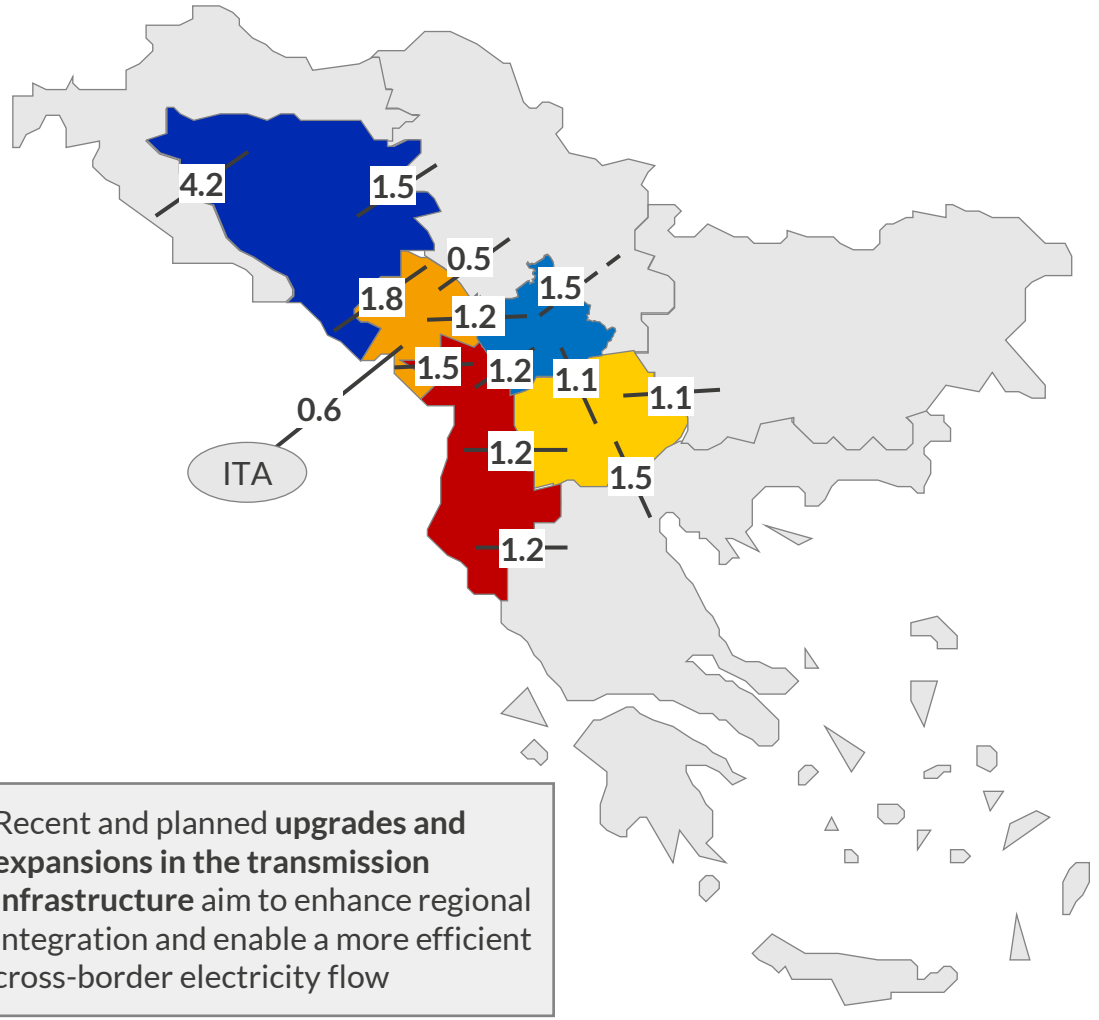
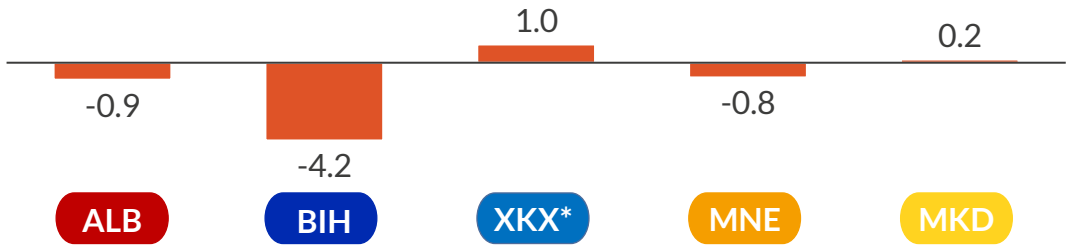
**Nominal transmission capacities**
GW




- Recent and planned **upgrades and expansions in the transmission infrastructure** aim to enhance regional integration and enable a more efficient cross-border electricity flow

**Net imports (2023)**
TWh



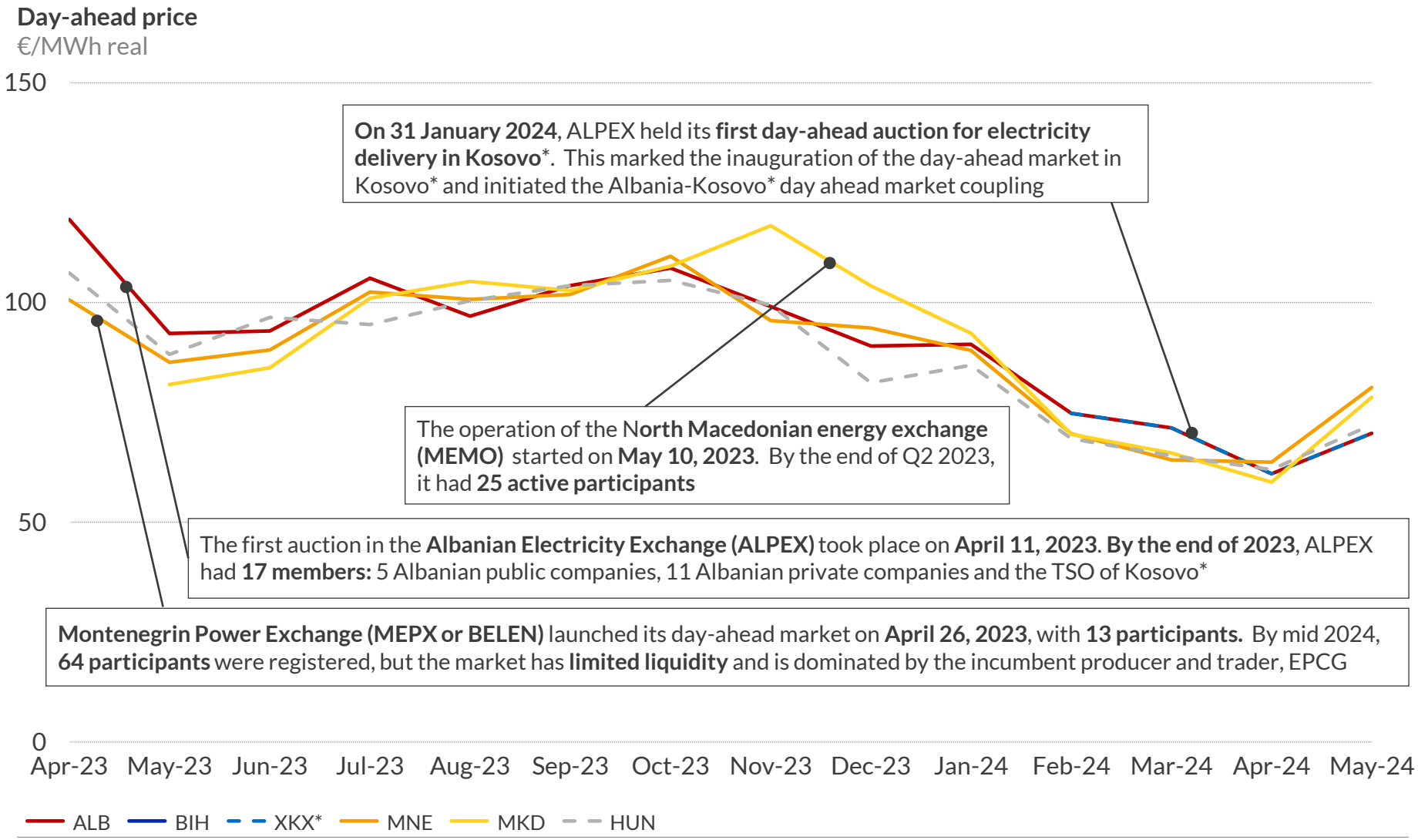

- The electricity generation of the region is **highly weather-dependent**, due to the significant share of hydropower in the energy mix; seasonal variations in water availability can greatly affect power production and import-export relations
- Only **Bosnia and Herzegovina consistently has surpluses and thus exports power**

**Net import [+], Net export [-] from 2018 to 2023**

| Country | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
|---|---|---|---|---|---|---|
| ALB | - | + | + | - | + | - |
| BIH | - | - | - | - | - | - |
| XKX* | + | + | - | + | + | + |
| MNE | - | + | + | - | - | - |
| MKD | + | + | + | + | + | + |

Sources: Aurora Energy Research, Energy Community Annual Implementation Report 2023

# Day-ahead prices appear fairly aligned within the WBs but also with other established exchanges such as the Hungarian one




Sources: Aurora Energy Research, MEMO, ALPEX, MEPX, HUPX, ENTSO-E

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- **Bosnia and Herzegovina does not have an organised market;** a relevant study is underway to determine the next legislative, institutional and organisational steps to establish an energy exchange
- In the first month of operation, the volumes at the newly established power exchanges ALPEX, MEPX and MEMO amounted to approximately **20%**, **17%** and **8% of the countries' total consumption**
- As other parts of Europe, in early 2024, the Western Balkans saw a **general declining trend in electricity** prices. Seasonal variations in demand and production resulted in fluctuating prices
- Due to the **high share of hydropower** in the generation mix, regional wholesale prices depend strongly on rainfall as a wet year leads to lower imports and prices while a dry year in more imports and higher prices

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# Existing and planned support schemes will play a key role in accelerating renewable capacity deployment in the region

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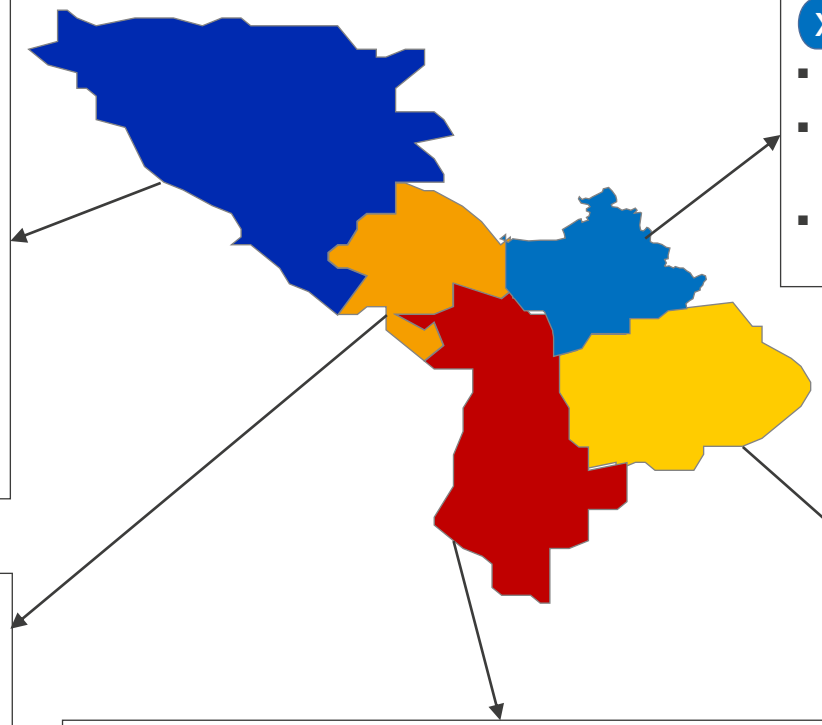
**In the whole region, Feed-in-Premium schemes are expected to gradually replace Feed-in-Tariffs**

## BIH

- **FiT** in place since **2012** in the **Federation of Bosnia and Herzegovina (FBiH)** and since **2013** in **Republika Srpska (RS)** for hydropower, wind, solar and biomass/biogas. Small hydropower plants of up to 10 MW were entitled to feed-in tariffs up until 2022, when the new RES law excluded them from this support measure
- **FiT** for **small solar, wind, biomass and biogas plants** and **FiP** for **large solar, wind, biomass and biogas plants** to be awarded **via auctions** in the period **2025 - 2030**



## XKX*

- **FiT** in place from **2014 to 2020**
- **One solar auction in 2024 for land accompanied by PPAs**, to be later **converted into CfD**
- **CfD auctions** planned for the period **2024-2025** to support **950 MW of RES and BESS**

## MKD

- **FiT** in place since **2007.** From **2019** onwards available for **wind, small hydro and biogas / biomass**
- **One-way FiP auctions** for solar have been taking place since 2019

## MNE

- **FiT** in place since **2011 for rooftop solar, wind, small hydro, biomass/biogas, and cogeneration**
- A draft law in **2024** introduced **FiT via auctions** for **small plants** and **FiP via auctions** for all RES technologies, including hydropower plants. First auctions will probably take place in **2025**. Producers will have the possibility to change a FiT support into FiP

## ALB

- **FiT** in place since **2017**, for hydropower and small wind and solar plants
- **Auctions for land accompanied by PPAs** in 2020 -2021, to be later **converted into CfDs**
- **CfD auctions** for large solar and wind in 2023 and 2024, with further auctions to take place in 2025

Source: Aurora Energy Research

# The development of RES projects is a lengthy and bureaucratic procedure requiring the involvement of multiple stakeholders

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## Construction Permit

The **construction permit granting procedure** is a multi-stage procedure and requires applying for different types of permits, where one type of permit is often a precondition for obtaining another type of permit:

**ALB** The developing and construction phase includes **nine different permits** from different competent authorities. The **operation phase** includes **four permits**

**BIH** The key development milestones include **nine permits** in each entity (Federation of Bosnia and Herzegovina and Republika Srpska). The procedure requires multiple steps and obtaining opinions, elaborates, and consents from completely different authorities from the same or different government levels

**MNE** To build a renewable energy power plant it is necessary to obtain **nine permits**

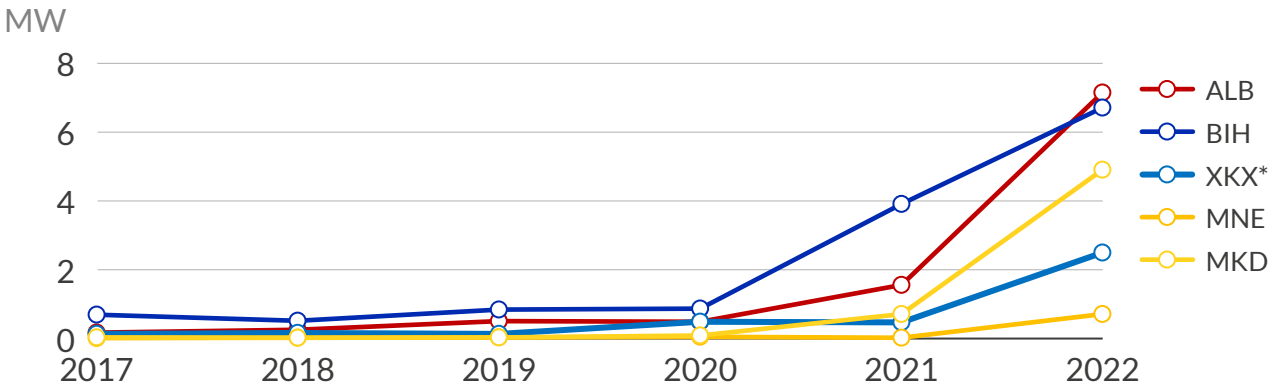
**MKD** The construction of RES plants requires **four licenses**

**XKX*** Only in **Kosovo** a **RES one-stop shop** is established to facilitate the investment process in renewables, and it operates under the Ministry of Economy

## Grid Connection

- Due to **inadequate grid preparation**, **lengthy waiting lists for connections will soon develop**, and (temporary) rejections owing to capacity issues may become inevitable

**Capacity of RES applications for connection to the transmission grid**




**Time between connection application and operation for RES projects**

years

| | ALB | BIH | XKX* | MNE | MKD |
|---|---|---|---|---|---|
| HV | 4 | 2-7 | 3-4 | 3 | 3.4 |
| MV | 1 | 0.5[1] | n.a. | n.a. | 1-2 |
| LV | 0.25 | 0.5[1] | n.a. | n.a. | 0.5-1 |

1) Relates to Republika Srpska; no data for distribution grids in the Federation of Bosnia and Herzegovina.

Sources: Aurora Energy Research, Permit-Granting and Planning of Energy Projects in the Energy Community: Overview, Recommendations and Best Practices, Energy Institute Hrvoje Požar | Zagreb | 22 February 2024

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# The decarbonisation ambition of the Western Balkans is reflected into their national targets with a commitment to increase the share of RES

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| Main policy development[1] | ALB | BIH | XKX* | MNE | MKD |
|---|---|---|---|---|---|
| **Emission targets & Carbon pricing** | ▪ **6.1% reduction of GHG** by 2030 compared to 2018 levels<br>▪ Plans to introduce an ETS aligned with EU ETS, with trading to start in 2025 | ▪ **41.21% reduction of carbon emissions** by 2030 compared to 1990 levels<br>▪ Plans to put together a system for $CO_2$ pricing and trading by January 2026 | ▪ **49% reduction of GHG** by 2030 compared to 2016 levels<br>▪ Intends to get ready for a carbon pricing system by 2025; it will gradually increase; the goal is to integrate with the EU ETS by 2031. | ▪ **35% reduction of emissions by 2030** compared to 1990 levels<br>▪ $CO_2$ pricing in place since 2020: an ETS system, with prices significantly lower than the EU ETS | ▪ **82% reduction of GHG emissions by 2030** compared to 1990 levels<br>▪ Internal carbon pricing mechanism since 2021<br>▪ Aims to introduce $CO_2$ tax by 2025 |
| **Thermal power plants** | ▪ One oil powered thermal plant, built in 2011 however, it never entered operation<br>▪ **Conversion to a natural gas** plant is planned as part of a policy in Albania's NECP | ▪ **No official coal exit date**<br>▪ The existing plants are expected to be compliant with EU pollution laws until 2028<br>▪ Still planning new coal power plants | ▪ **No official coal exit date** /according to Energy Strategy the country aims for 2050 | ▪ One thermal power plant in operation, which will be **shut down by 2035 the latest** | ▪ Two thermal power plants in operation, which will be **shut down by 2030** |
| **Renewables** | ▪ 54.4%[2] RES share in final energy consumption by 2030<br>▪ **RES dominates electricity generation by 2030** | ▪ 43.6% RES share in gross final energy consumption by 2030<br>▪ **70.1% RES share** in the power sector by 2030 | ▪ 32.5% RES share in gross final energy consumption by 2030<br>▪ **45% RES share** in the power sector by 2030 | ▪ **50% RES share** in gross final energy consumption by 2030 | ▪ 38% RES share in gross final energy consumption by 2030<br>▪ **66% RES share** in the power sector by 2030 |

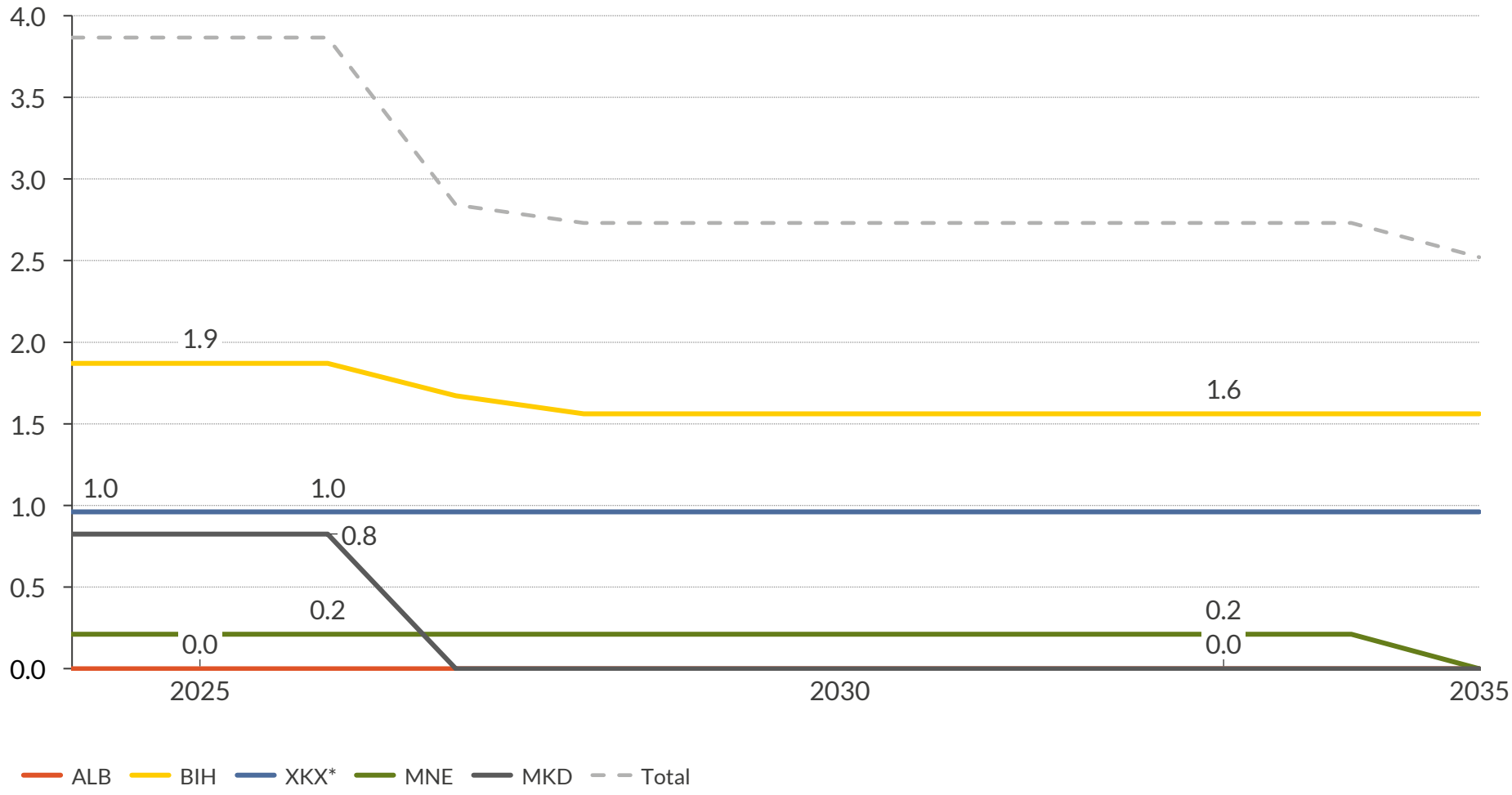
1) Montenegro has yet to publish a National Climate and Energy Plan, the information provided comes from Montenegro's NDC (UNFCCC) and Balkan Green Energy News 2) Conflicting info with Energy Community, according to which the target is at 52% (LEGAL FRAMEWORK EDITION 5.0, Volume IV)

Sources: Aurora Energy Research, Energy Community, NECPs, UNFCCC, Balkan Green Energy News

# Coal plays a significant role in the region's electricity supply, but the installed capacity is expected to decrease by one third by 2035

**Installed coal & lignite capacity**

GW




Sources: Aurora Energy Research, Energy Community

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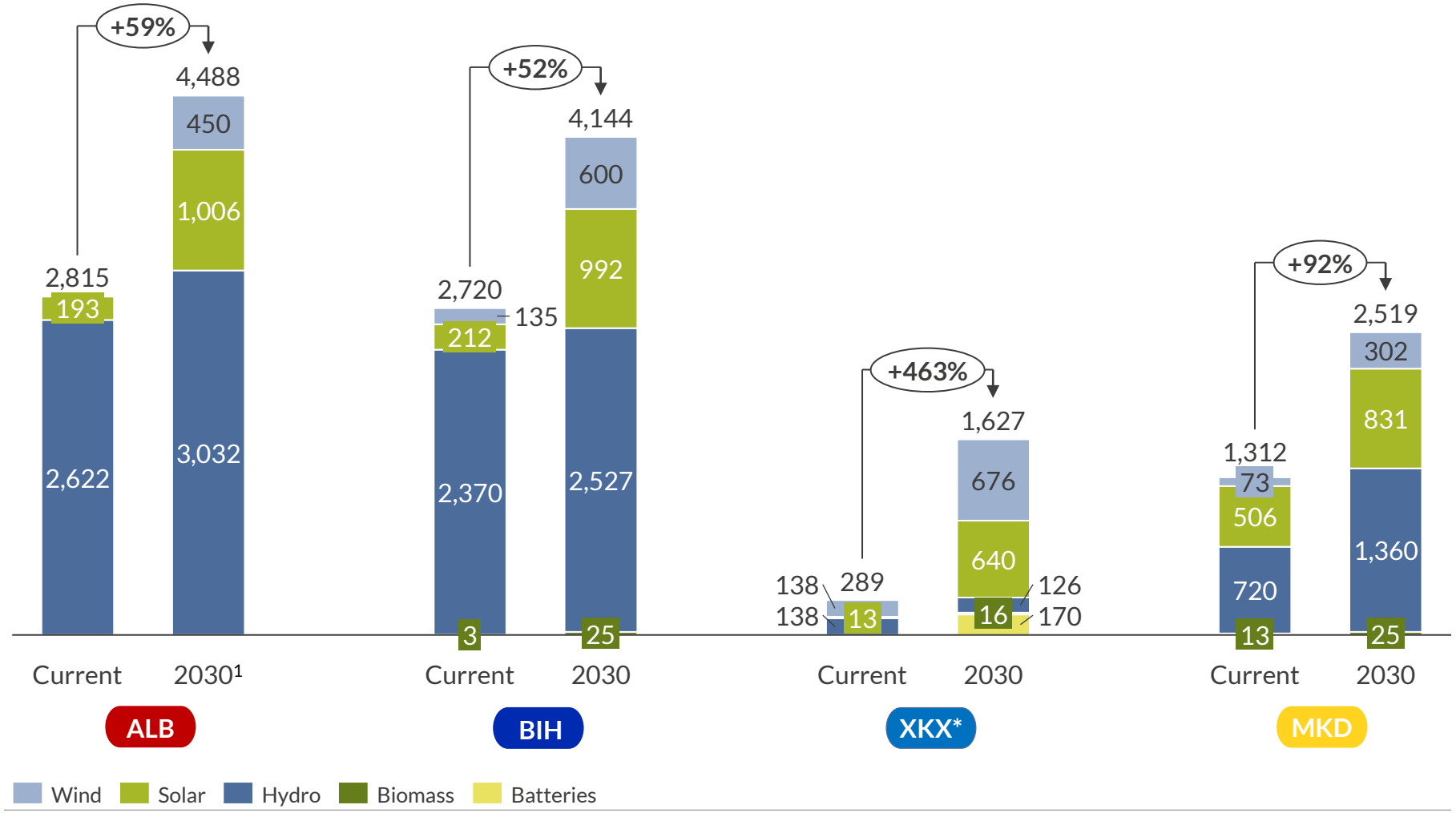
- **Albania**'s only coal power plant, was built in 2011, but was **never put into operation**
- In the other WB countries **coal plants play a significant role in the energy supply**, but there is a noticeable shift towards meeting EU environmental standards
- **Montenegro** is committed to close its only coal power plant by **2035**
- In **Bosnia and Herzegovina**, the **construction of new coal power** plants is still under consideration
- **Kosovo***'s electricity generation is almost entirely dependent on two ageing lignite plants, the country intends to **phase out coal by 2050**
- **North Macedonia** has suggested **it may delay its coal phase-out from 2027 to 2030** and is moving forward with opening new coal mines

# The Western Balkans are setting ambitious targets for renewables to come online, almost doubling the installed capacity by 2030

## 2030 renewable capacity targets of the draft NECPs

MW




1) Extrapolated from Albania's draft NECP policy and measure targets. 2) This does not include rooftop solar.

Sources: Aurora Energy Research , NECPs

- **Montenegro has not published a draft NECP** yet, and therefore has no concrete RES targets
- **No new hydro capacity will be developed in Kosovo*** due to its environmental impact and low generation potential
- **Kosovo*** aims at having **170 MW of battery storage** installed by 2031 whilst **North Macedonia** has established a **framework for energy storage**
- **Solar**[2] is expected to grow **four-fold across the region** whilst **wind** is foreseen to grow **nearly six times its current capacity**
- Albania and Kosovo* have **upcoming RES auctions**, and alongside North Macedonia have FiP schemes in place
- Bosnia and Herzegovina and Montenegro are **planning FiP auctions from 2025**

# CBAM[1] is set to launch in 2026; The WB countries, could avoid its negative effects on their economies if they introduce carbon pricing

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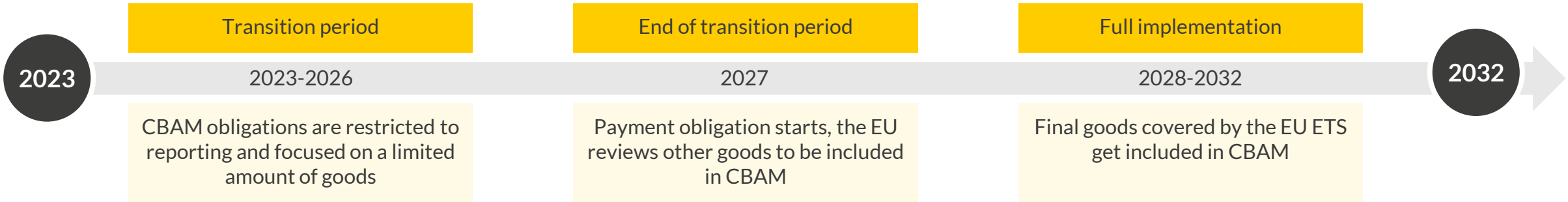



**CBAM (Carbon Border Adjustment Mechanism) is the European Union's** policy tool designed to address concerns about **carbon leakage**, which occurs when companies move production to regions with less stringent climate policies to avoid higher costs associated with carbon emissions in their home countries; it aims to prevent this by imposing carbon costs on certain imported goods based on their carbon footprint

**To avoid CBAM's negative effects**, several Western Balkan countries are planning to introduce carbon pricing:
- If country is participating in EU ETS, it is exempt
- If a country has implemented a domestic carbon price in the relevant sectors, this price will be deducted from the CBAM fee

**Temporary exemption up to year 2030** can be awarded, provided that:
- **Market coupling is in place** between a WB country and the Union's electricity market and
- There is **no technical solution for the application of CBAM** to the import of electricity into the Union

1) Carbon Border Adjustment Mechanism, 2) Impact o f the CBAM on the Energy Community Contracting Parties. 3) Energy Community CBAM-Readiness Tracker, June 2023.

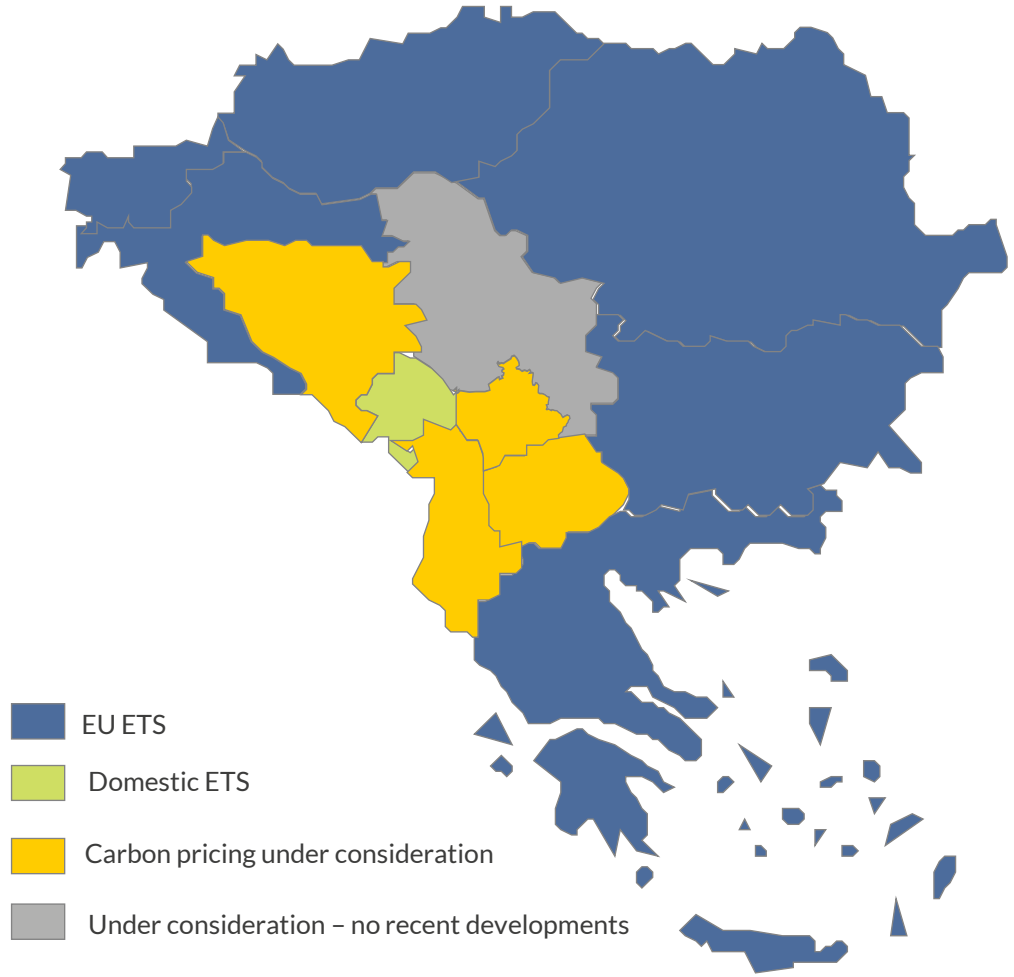
Sources: Aurora Energy Research, Energy Community CBAM-Readiness Tracker

# Montenegro is the only WB market with an ETS system already in place, the other countries are planning the introduction of ETS

| | |
|---|---|
| ALB | Plans to introduce an ETS aligned with EU ETS, with trading to start in **2025** |
| BIH | According to its NECP, BiH plans to put together a system for $CO_2$ pricing and trading by **January 2026** |
| XKX* | Intends to get ready for a carbon pricing system by 2025; the price will gradually increase; the goal is to integrate with the EU ETS by 2031 |
| MNE | ETS in place since 2020, significantly lower rates than EU ETS (min. price 24 €/tCO2) |
| MKD | Is planning to launch a voluntary carbon market in 2024 and plans to bring carbon pricing in line with EU ETS by 2030 |

According to the Energy Community, the development of a **regional system for emissions trading in the Energy Community has advantages compared to the development of separate national systems:**

- It would ensure that **emissions are reduced where it is cheapest to do so in the entire region** i.e., where the cheapest abatement options are available, ensuring economic efficiency
- It would **avoid issues of low liquidity in the markets where allowances would be traded,** which smaller Contracting Parties might encounter
- It would significantly **reduce the administrative costs for Contracting Parties of setting up and implementing the ETS**, following the same economies of scale logic




Sources: Aurora Energy Research, Energy Community

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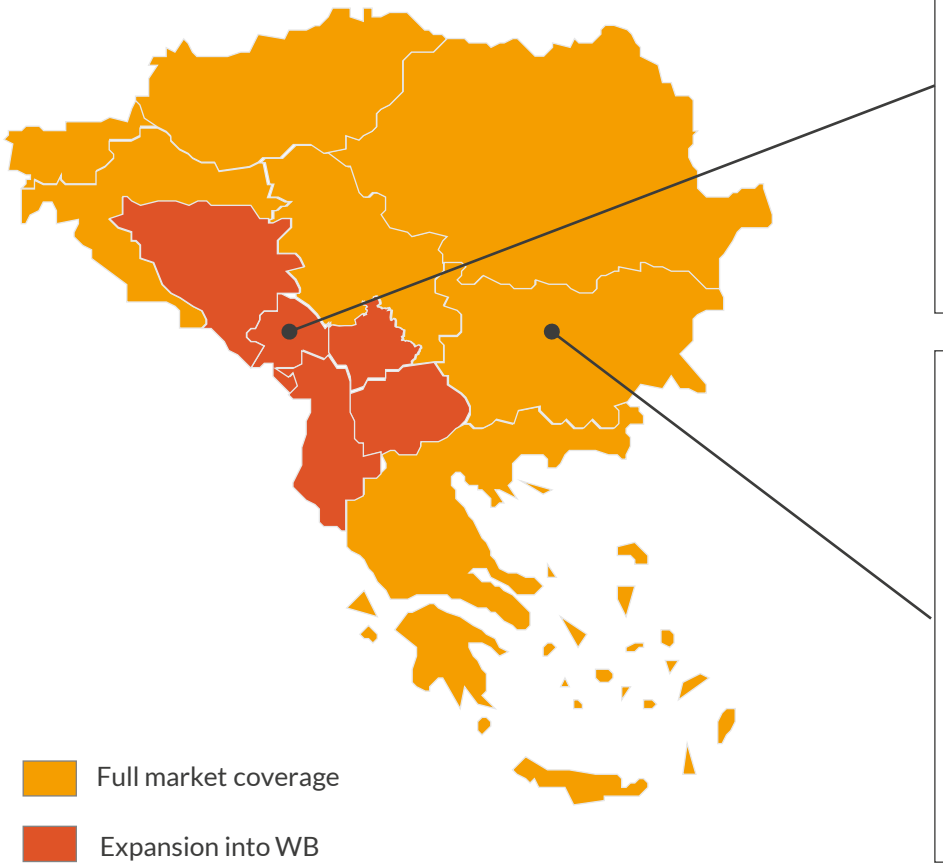
# We are expanding our market coverage in the Western Balkans, and developing regular Power and Renewables Market Forecast services

South-Eastern Europe and Western Balkans market coverage




**We are expanding our coverage to the Western Balkans, including Albania, Bosnia and Herzegovina, Kosovo*, Montenegro and North Macedonia**

- In depth look into the power market status quo, market liberalisation process and regional/EU integration
- Assessment of decarbonisation targets and policies, and their impact on RES business cases
- Assessment of macro-economic sensitivities (fuel prices, carbon allowances, demand) and development of market outlooks under three market scenarios (Central, High, Low)
- Development of distinct Power and Renewable Market Forecast reports for the region, which will be updated bi-annually from Q1 2025

**This work builds on the comprehensive market analyses and advisory services which we offer through our Power and Renewables Market Forecast subscriptions for Greece, Bulgaria, Romania, Hungary, Slovenia, Croatia and Serbia**

- **Forecasts of wholesale market prices along three scenarios** (Central, High, Low, Net Zero) until 2060 (updated quarterly)
- **All the latest trends and forecasts,** recent market and policy developments
- **Capacity development**, generation mix, interconnector capacity, capacity buildout, exports
- **Capture prices** (onshore, offshore solar), price distributions, spark spreads
- **Corporate PPA market analysis and valuation**, example of fair price valuation

Source: Aurora Energy Research

# We structure the study into two main workstreams; participants benefit from interaction in bilateral meetings and two workshops

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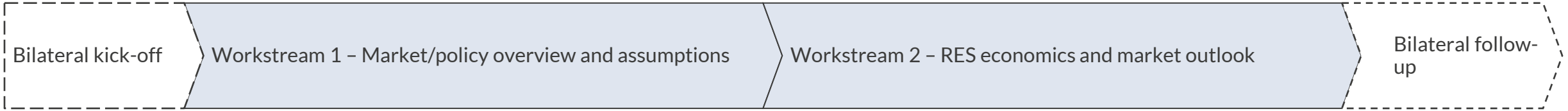
Study process




- **Detailed analysis of current market and policy landscape**
  - Regulatory and policy status quo
  - Current capacity mix and market participants
  - Seasonal, daily and hourly demand profile, wind and solar generation patterns etc.
- **Forward-looking view of key power market assumptions**
  - Commodity and $CO_2$ price development
  - Demand breakdown and electrification
  - RES policy and decarbonisation targets
- **Workshop #1** on key research findings and main model assumptions
- **Forecast of power markets towards 2060 in Central scenario**
  - Baseload/capture price development
  - Capacity and generation mix outlook
  - Renewables penetration / cannibalisation
  - PPA fair value calculation
  - Carbon emissions and grid intensity
- **Modelling of 2 alternative market scenarios**
  - Analysis of individual market sensitivities
  - Development of High and Low market scenarios
- **Workshop #2** on key model outputs and overarching findings

Source: Aurora Energy Research

# Power & Renewables Market Services: Key market analyses and forecasts for all participants in the W. Balkans power markets

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## Key information on Aurora's subscription service for Albania, Bosnia and Herzegovina, Kosovo*, Montenegro and North Macedonia

- **First report in March 2025**
- **Regular updates thereafter,** with bi-annual reports
- **Introductory workshop,** with insights on market and policy status quo, policy and market outlook, price curves and market scenarios
- **Subscriber webinar,** Aurora's experts will be organising a webinar for each bi-annual update where we highlight key market developments as well as their impact on our modelling

**All intelligence for a successful business, based on bankable price forecasts**

### 1 Bi-annual market report updates to assess business models

- **Yearly forecasts of wholesale market prices along three scenarios** (High, Low, Central) until 2060
- **All the latest trends and forecasts,** recent market and policy developments
- **Price distributions**, spark spreads
- **Capacity development**, generation mix, interconnector capacity, capacity buildout, exports
- **Capture prices** of key technologies (onshore wind, solar)
- **Corporate PPA valuation**, example of fair price valuation
- **Data in Excel,** all forecast data easily downloadable in Excel format
- **EU ETS carbon price & gas price** forecasts

- *Reports are published in Q1 and Q3*

### 2 Interaction through workshops and ongoing support

- **Bilateral workshops** at your offices to discuss specific issues on the individual markets
- **Ongoing availability** (calls, access to market experts, modellers) to address any questions across European power markets
- Discounted invitations to Aurora's annual **Spring Forum**

**Optional add-ons**

- **Granular data from our Power & Renewables Market Forecast report for Central, High & Low**
  - Hourly baseload prices
  - Monthly/quarterly commodity prices

Source: Aurora Energy Research

# Get in touch

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