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# Renewable Power Purchase Agreements in the Energy Community

Key findings from the study

This report was prepared for the Energy Community

December 2024

Strictly private & confidential

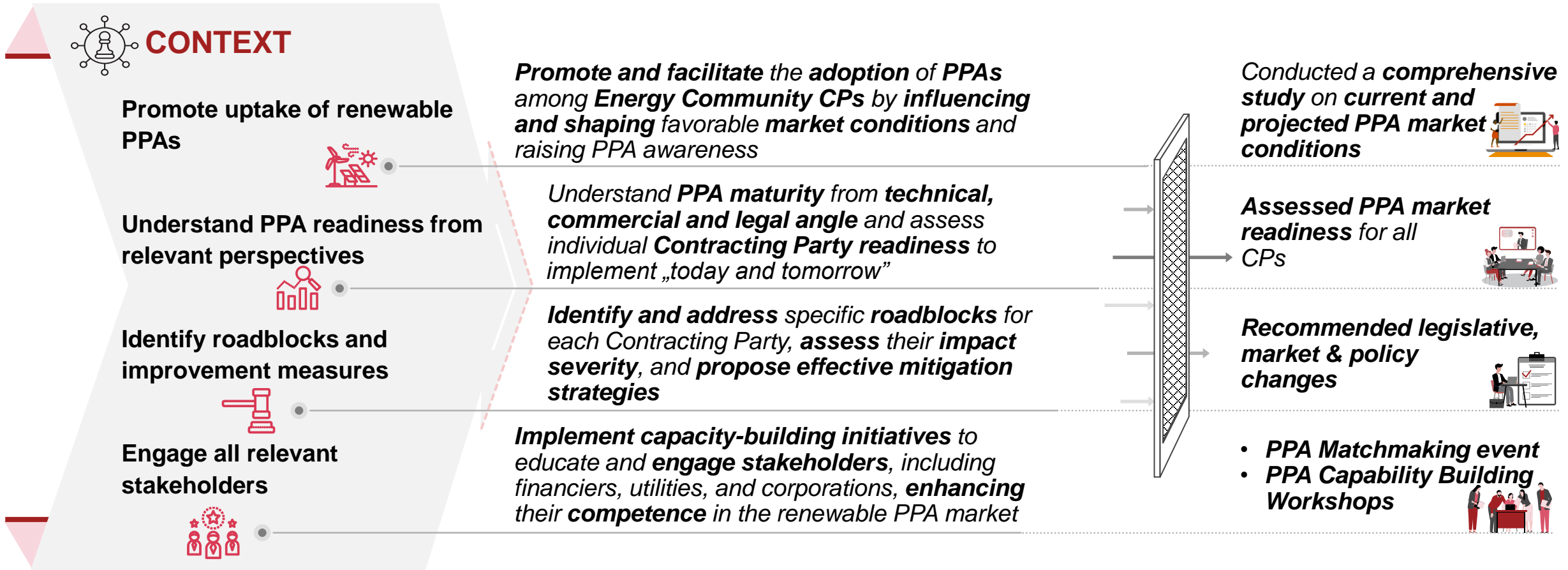
*The report is based on data available up to April 2024, any developments or updates beyond this date are not reflected in the analysis*

# The ultimate project study objective was to facilitate renewable PPAs in Energy Community CPs to meet climate targets

## Project study objective

## Activities

## Outputs



# EU sees PPAs as one of potential levers for RES deployment & wants to improve the framework in electricity market reform

## PPA role in EUs electricity market design reform (selection)

### Recommendations for PPA deployment in EU MS



Incorporate PPA policies and measures in INECP



Remove unjustified barriers, procedures or charges, and promote uptake of PPAs



Set up guarantee scheme at market price to reduce financial risk for off-takers for default in long-term payments



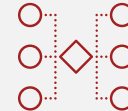
Facilitate aggregation of demand for PPAs to small and medium sized off-takers



No support to PPAs generated from fossil fuels, but only renewables



Remove unjustified barriers to cross-border PPAs



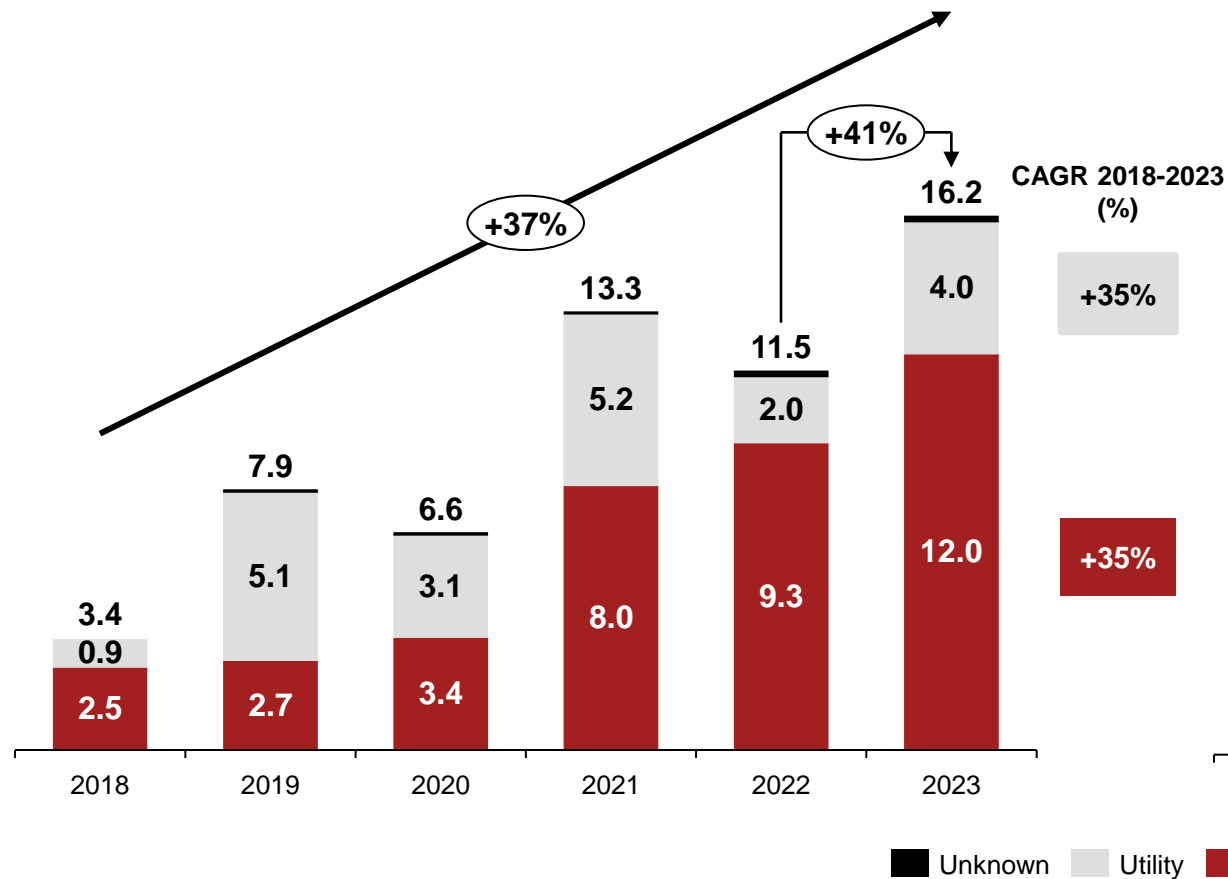
Allow RE project developers participation in public support tender to reserve a share of generation for sale via PPA



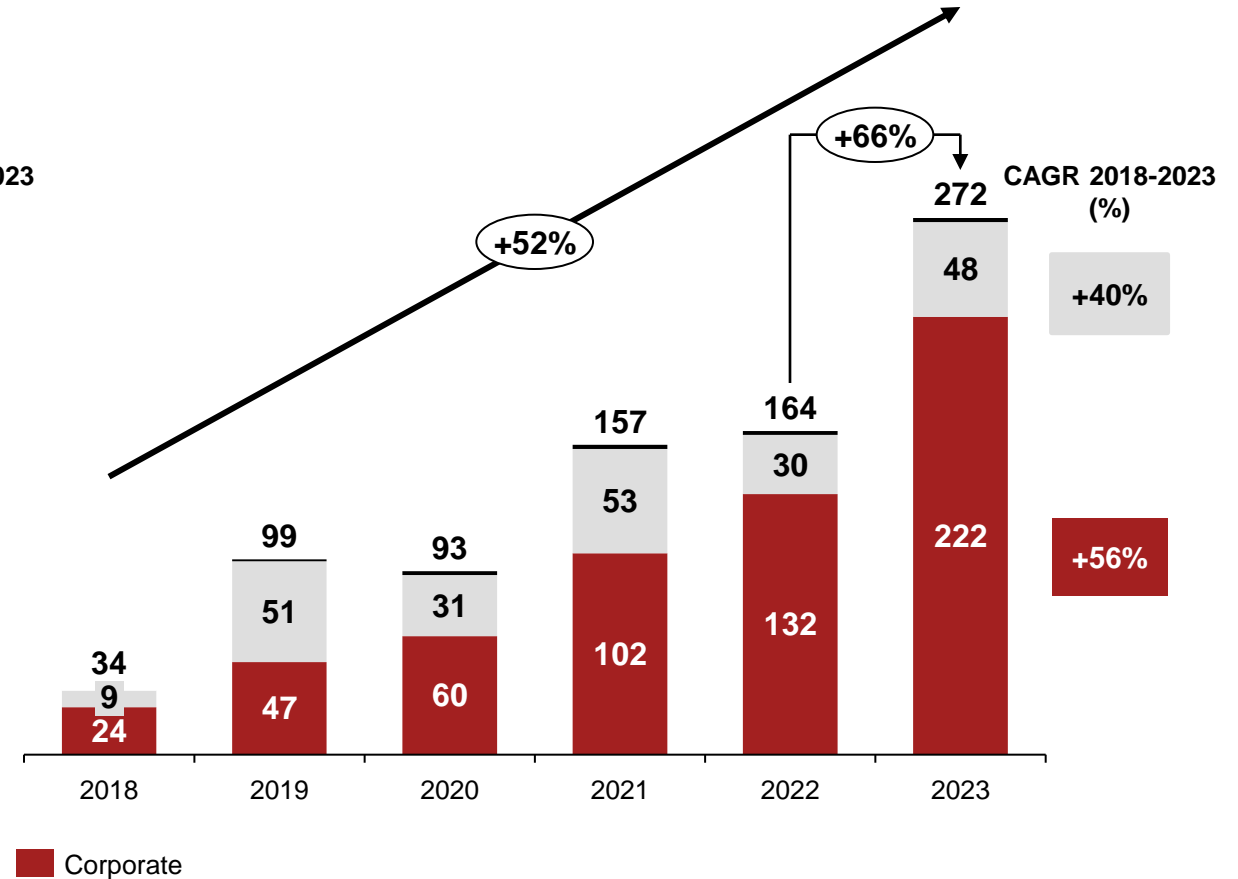
Two way CfD or equivalent to be complementary with PPAs

# European PPA market has experienced growth of +50% each year in deal numbers, mostly driven by corporate off-takers

**PPA deal flow by contracted capacity in Europe**  
GW and %

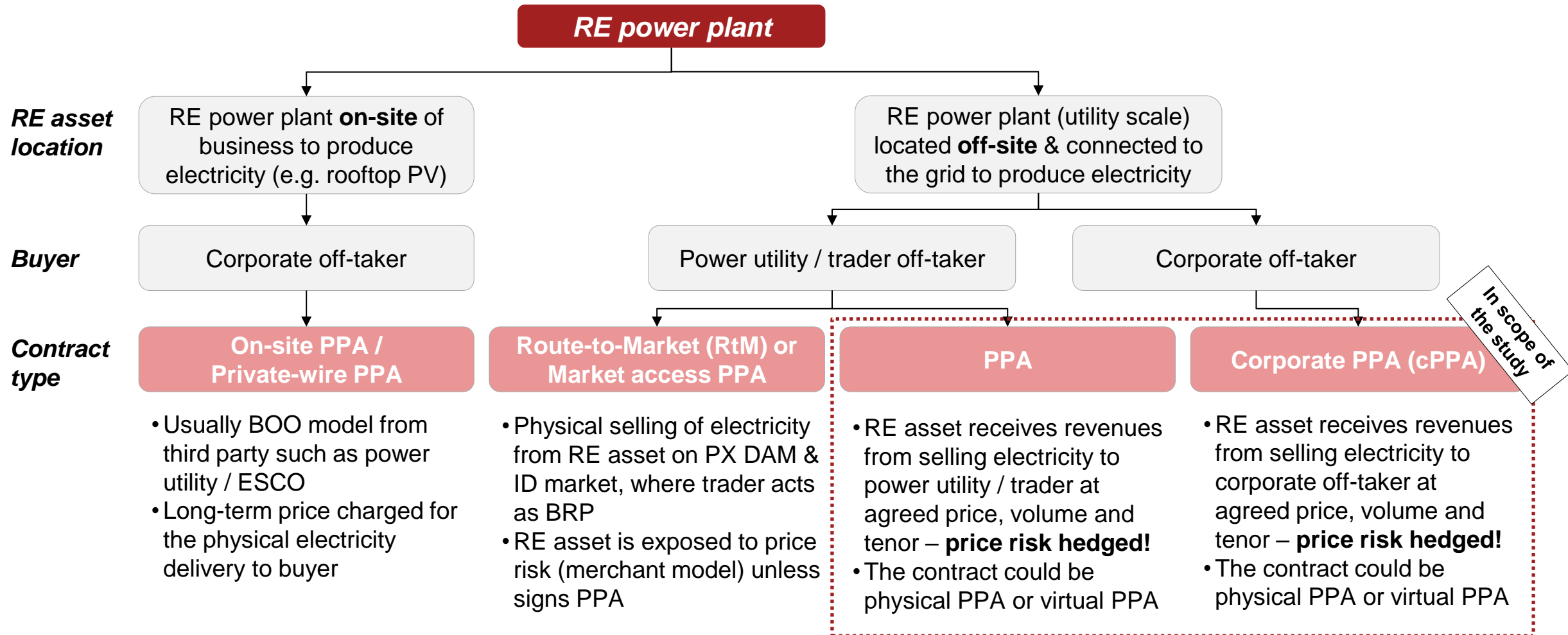


**PPA deal flow by deal count in Europe**  
number of deals and %



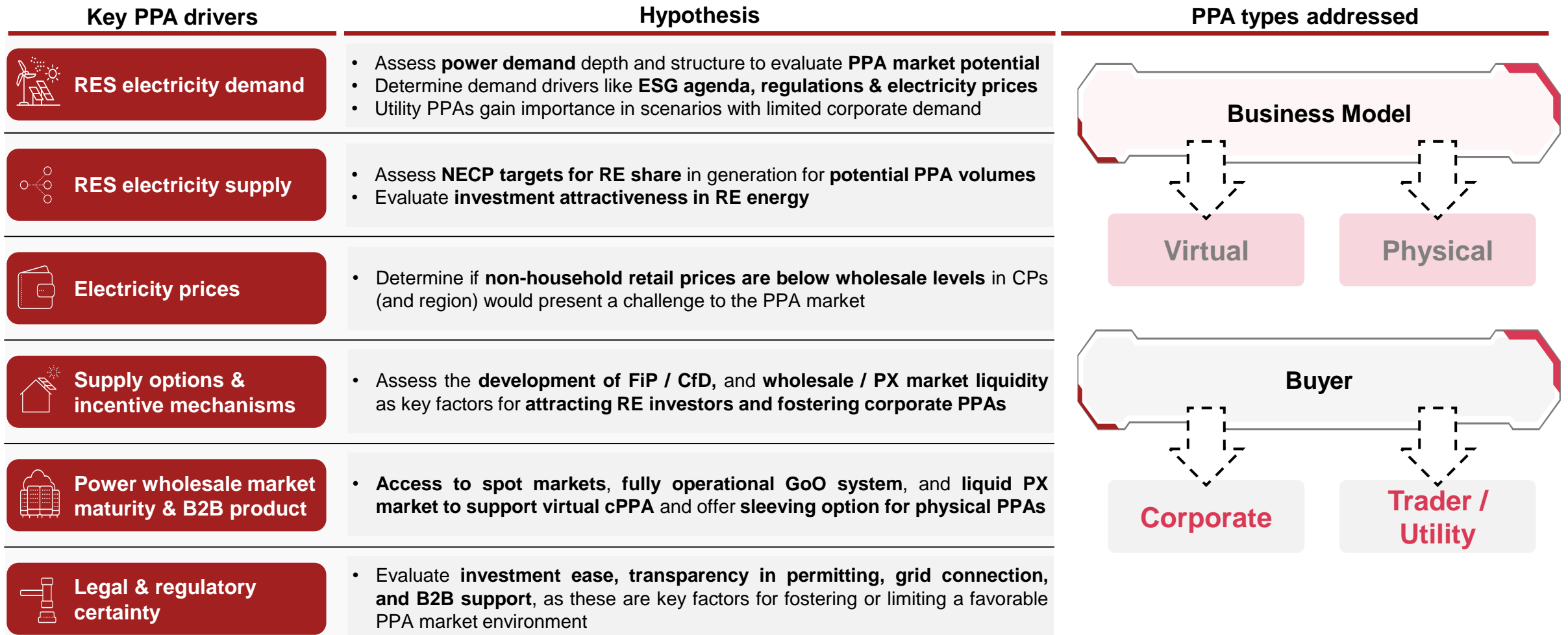
# In the study, we are referring to PPAs as off-site utility scale renewable assets that are hedged vs. power market prices

## PPA types & common nomenclature



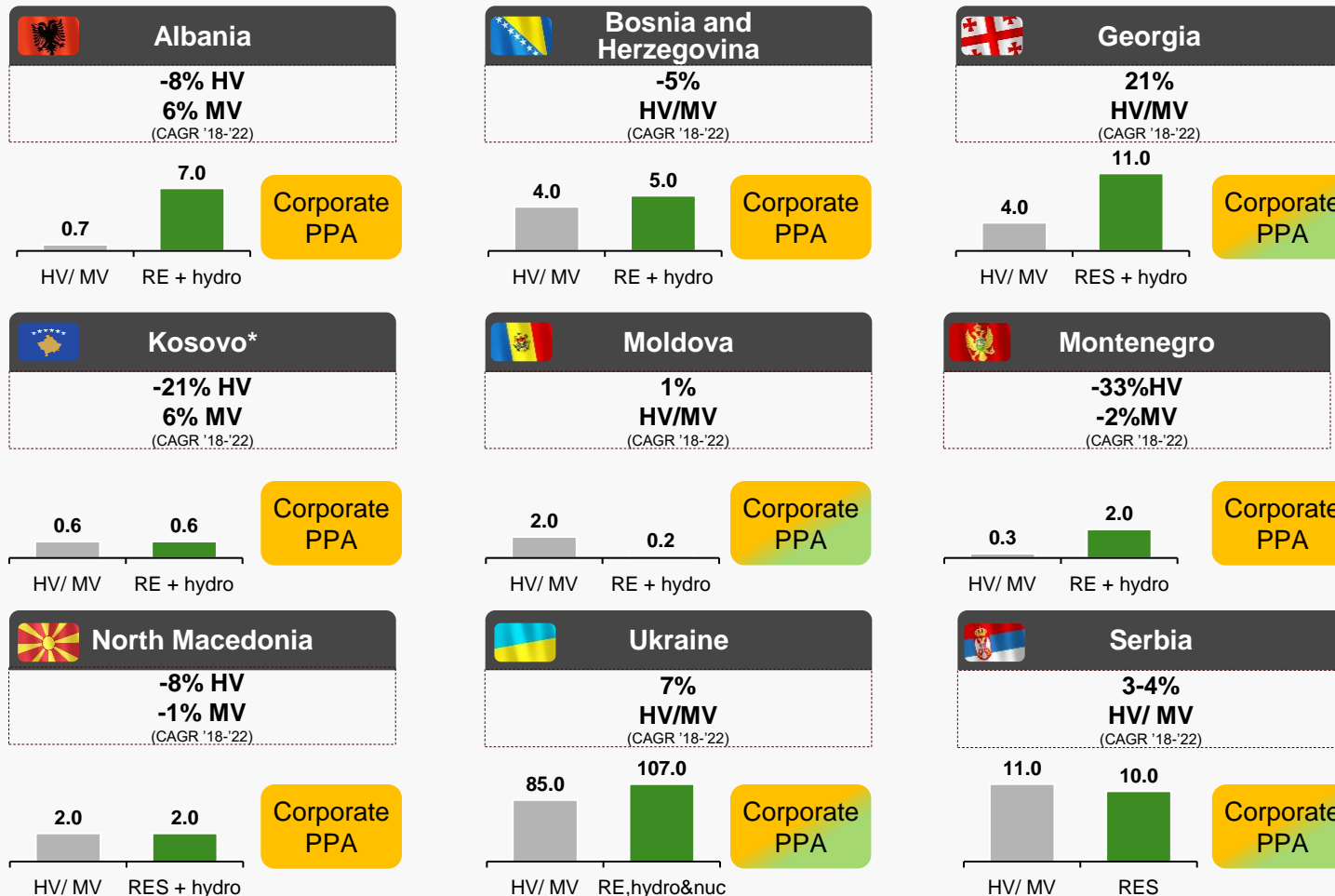
# Energy Community Contracting Parties' PPA market maturity has been assessed across six key drivers

## Methodology for assessment of PPA market maturity in EnC CPs



# In the EU, industry drives cPPAs, while in CPs, demand matches supply, allowing traders to offtake despite stagnant demand

## RES electricity demand (CAGR 2018-2022, TWh)

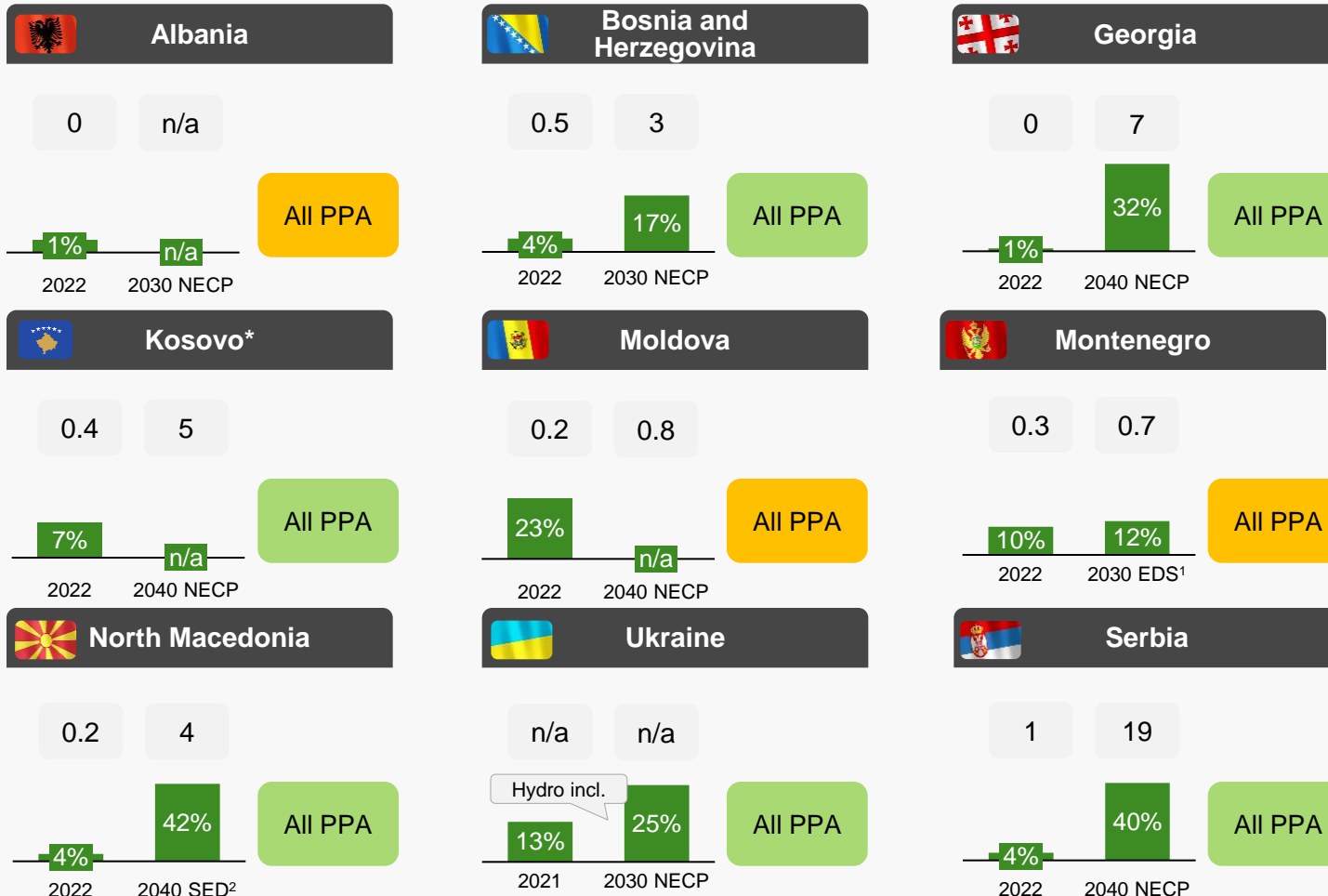


### Key success factors cPPA

- 1 **High industrial demand for renewable energy**
- 2 **Growing HV/MV electricity consumption rates**
- 3 **Strong ESG commitments from corporations**
- 4 **Promotion of cPPA opportunities and benefits**

# While all CPs increased RES generation, clear targets set a strategic framework for PPA implementation, and not all CPs have NECPs



## RES electricity supply (TWh)






### Key success factors overall

- 1 **Clear NECP targets for renewable growth**
- 2 **Increasing share of renewables in energy mix**
- 3 **Robust infrastructure for renewable energy**
- 4 **Attractive investment climate for renewables**

Note: 1) Energy Development Strategy of Montenegro; 2) Strategy for Energy Development of North Macedonia  
 Source: Renewable Power Purchase Agreements in the Energy Community  
 PricewaterhouseCoopers Savjetovanje d.o.o.

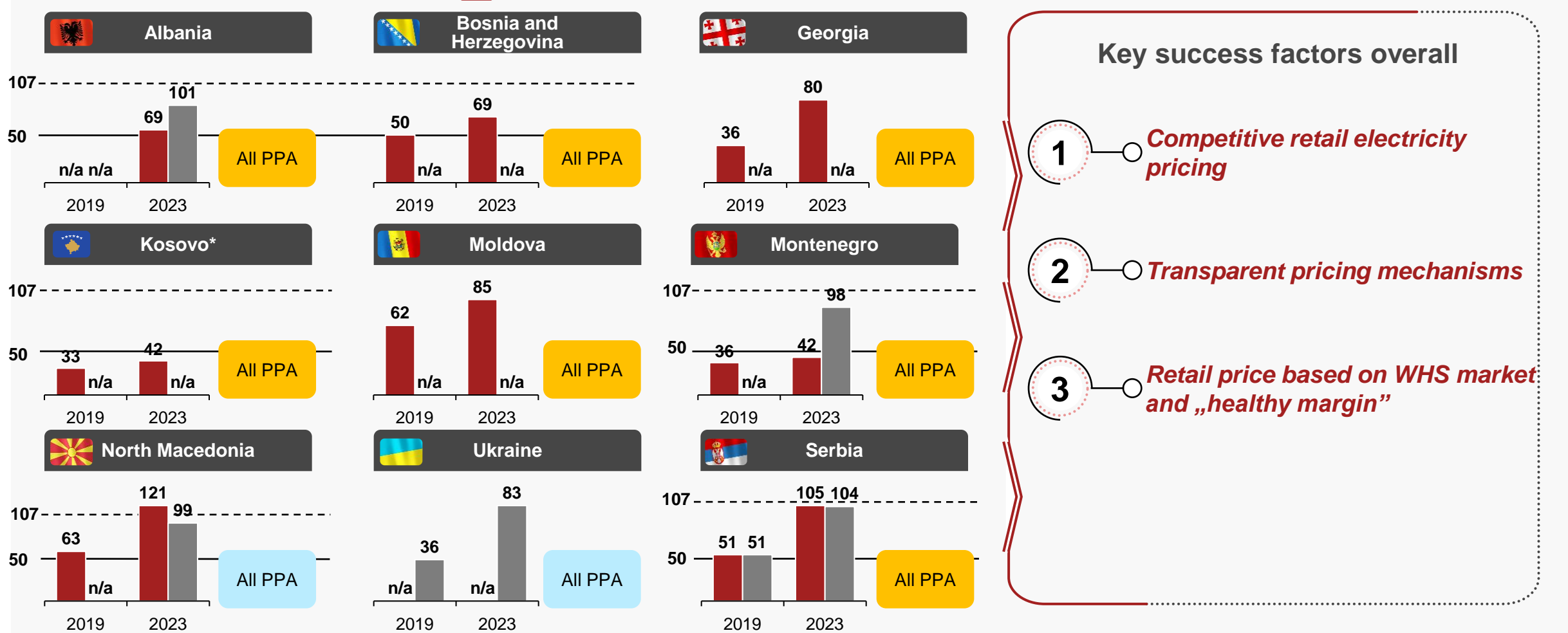
 Share of RE generation (solar & wind only excl. Hydro (%))  
 RE el. generation (TWh)

 Disabling  
 Hindering  
 Fostering  
 Neutral

# Competitive pricing is crucial, and non-household retail prices below wholesale levels must not hinder PPA market growth

## Electricity prices (EUR/MWh)

HUPX '19 - 50 EUR/MWh; HUPX '23 - 107 EUR/MWh

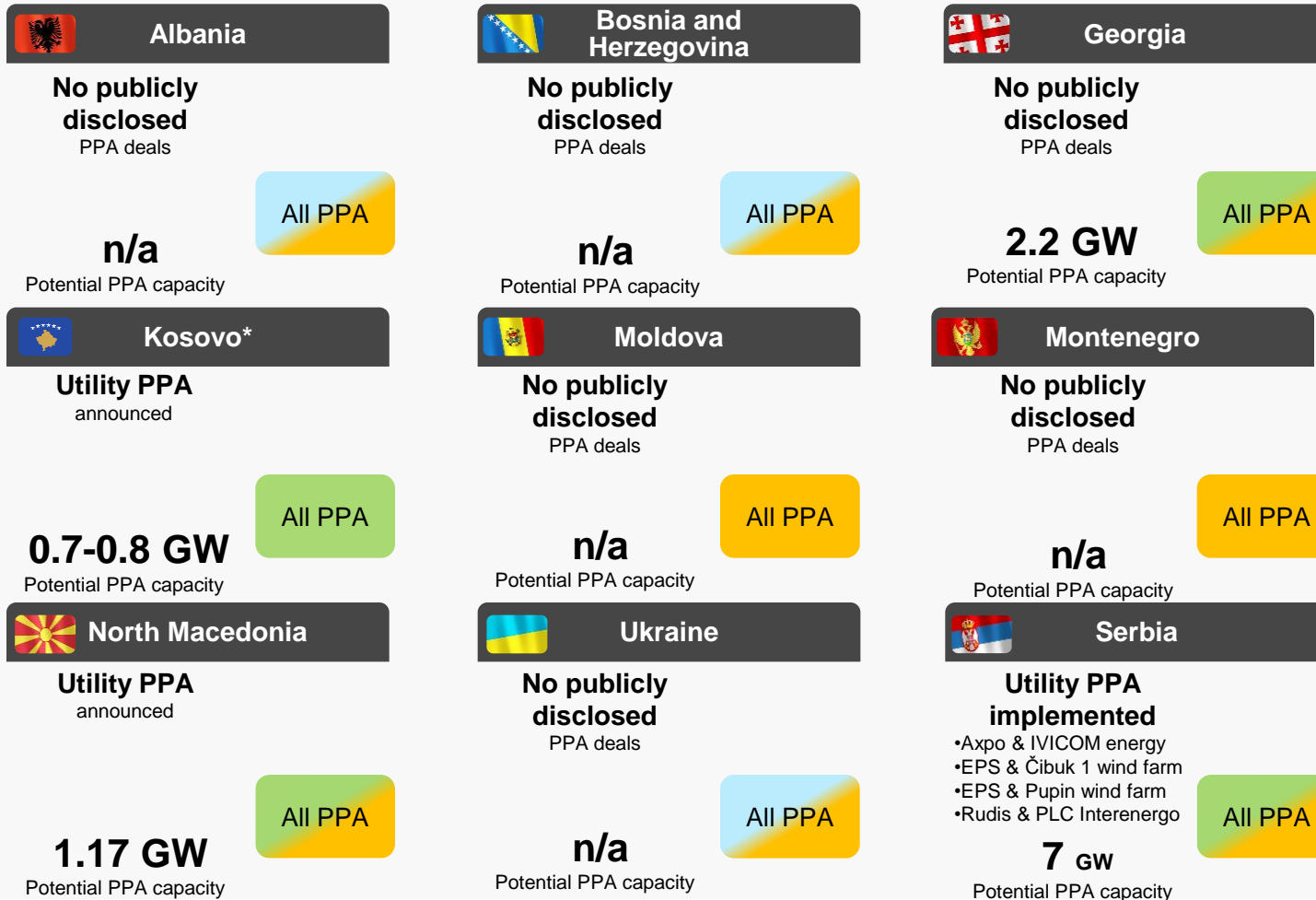


Source: Renewable Power Purchase Agreements in the Energy Community  
PricewaterhouseCoopers Savjetovanje d.o.o.

■ Retail (non-household)    ■ Wholesale (DAM)    ■ Disabling    ■ Fostering  
— HUPX ('19)    - - HUPX ('23)    ■ Hindering    ■ Neutral

# Incentives boost RE investments, yet can cannibalize PPAs; utilities & traders' active roles can enhance PPA viability in emerging markets

## Supply options & incentive mechanisms



### Key success factors overall

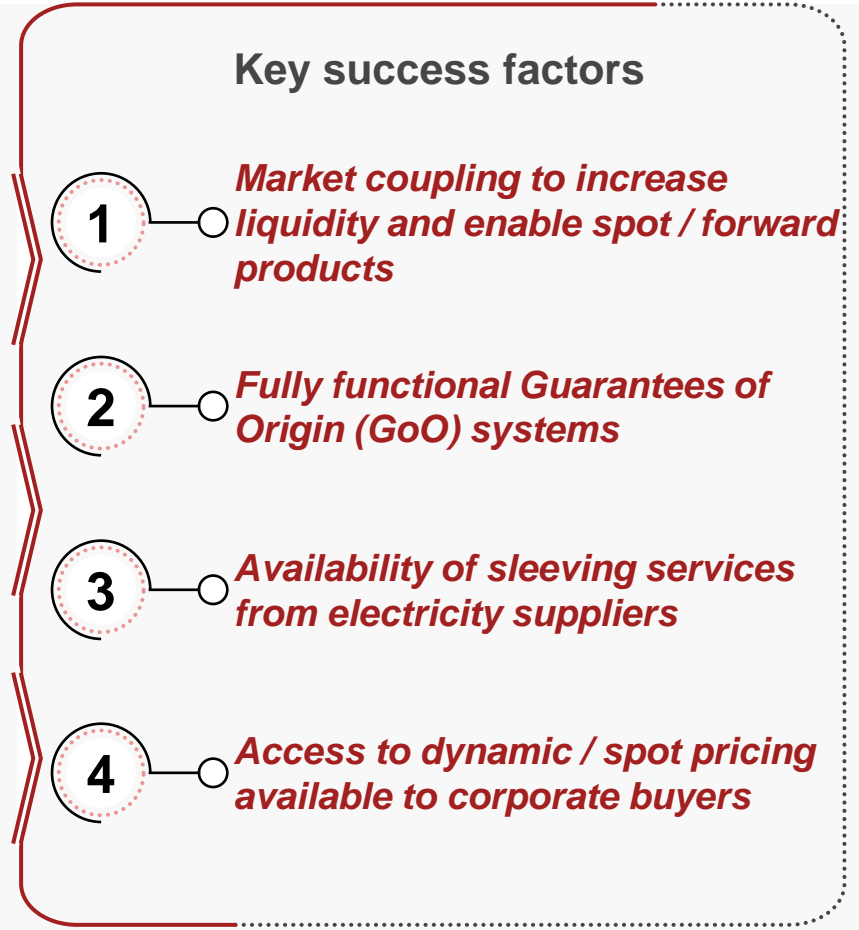
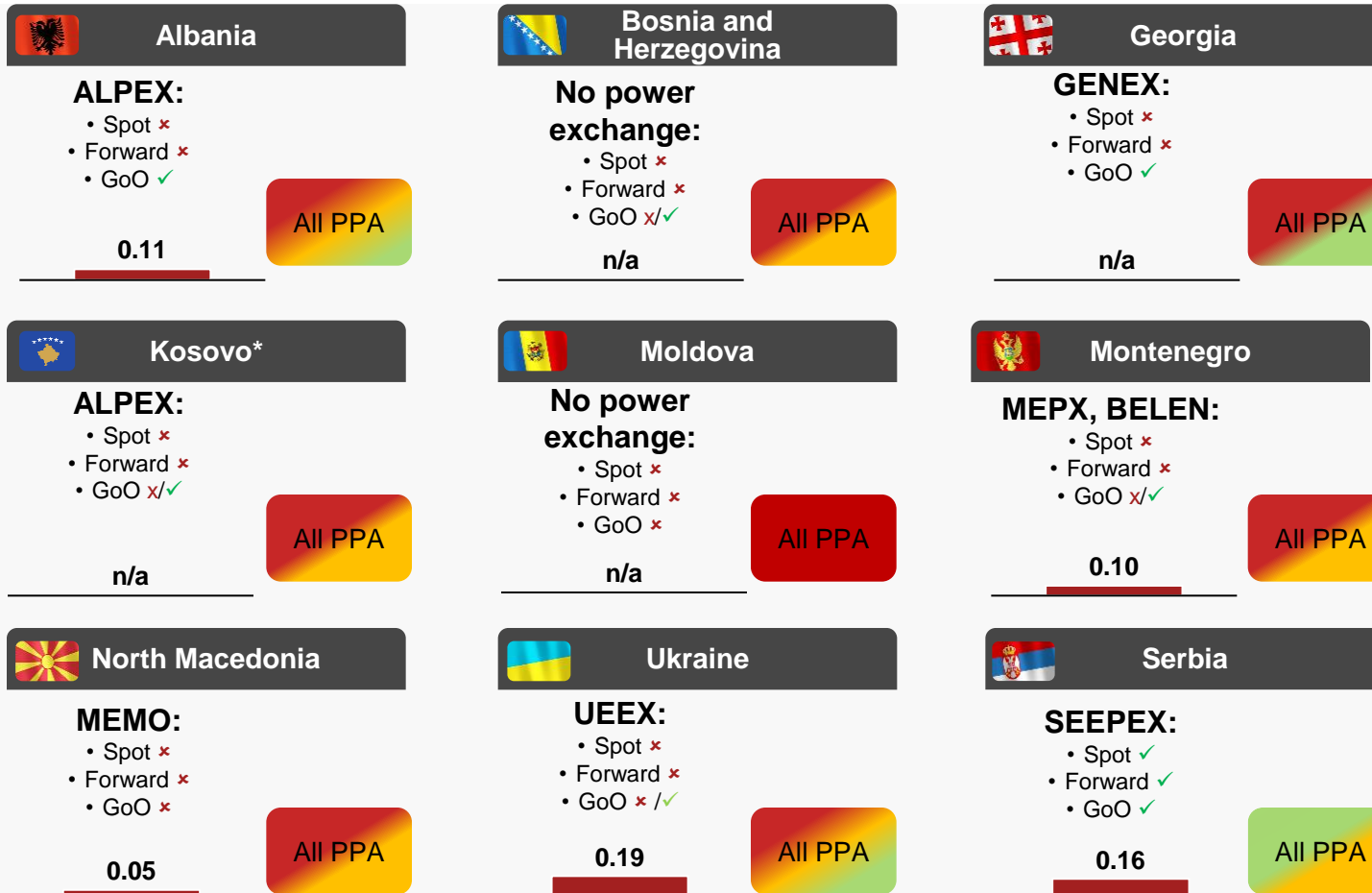
- 1** First comer PPA foster further market (usually utilities/traders)
- 2** Government incentives drive RE growth but also overlap with PPA
- 3** Ambitious targets support PPA demand, requiring an open WHS market for traders & utilities

Note: Potential PPA capacity is calculated as the gap between current state, announced RE incentives and RE target  
Source: Renewable Power Purchase Agreements in the Energy Community

# The maturity of power WHS markets, including liquid spot markets & operational GoOs, enhances the reliability of PPAs

## Power WHS market maturity & B2B product

Southeast Europe overall churn rate – 0.78



Note: Churn rate is a ratio of the total volume of power trade (ID/DA) and electricity consumption  
 Source: Renewable Power Purchase Agreements in the Energy Community  
 PricewaterhouseCoopers Savjetovanje d.o.o.

# Transparent permitting, supportive grid policies, and a strong legal framework ensure PPA security and predictability

## Legal & regulatory certainty

### Albania

- No direct PPAs with final consumers
- GoOs not recognized by EU
- 1 year TS rights
- Incomplete market coupling

All PPA

### Bosnia and Herzegovina

- Corporate PPAs not allowed
- GoOs not recognized by EU
- Limited TS rights

All PPA

### Georgia

- Wholesale market segments are inactive
- GoOs not recognized by EU
- Uncoordinated XB capacity

All PPA

### Kosovo\*

- No direct PPAs for consumers
- GoOs not recognized by EU
- Incomplete market coupling

All PPA

### Moldova

- Corporates can't sign direct PPAs with RES producers
- Uncoordinated cross-border capacity

All PPA

### Montenegro

- PPAs can be concluded
- GoOs not recognized by EU
- 1 year TS rights
- Incomplete market coupling

All PPA

### North Macedonia

- PPA only for large consumers (110kV)
- GoOs not recognized by EU
- 1 year TS rights
- Incomplete market coupling

All PPA

### Ukraine

- PPA is not defined by law
- Foreign GoOs recognition depends on internat. treaties
- Incomplete market coupling

All PPA

### Serbia

- PPA defined in law
- GoOs not recognized by EU
- 1 year TS rights
- Incomplete market coupling

All PPA

## Key success factors

- 1** Clear and transparent permitting processes
- 2** Supportive grid connection policies
- 3** Mutual recognition of GoOs
- 4** CBAM compliance to ensure fair carbon pricing for imports

Note Note: TS- transmission system

Source: Renewable Power Purchase Agreements in the Energy Community

PricewaterhouseCoopers Savjetovanje d.o.o.

■ Disabling
 ■ Fostering
 ■ Hindering
 ■ Neutral

# There are five recommendations for EnC CPs to enable PPA inception and foster further growth

## PPA challenges and recommendations in EnC CPs



### Challenges

Significant **shortfall in non-hydro RE** across all CPs, where scarcity affects virtual, physical, corporate, and utility PPAs

**Retail prices often below wholesale, thus regulated** across the region reduce the attractiveness of PPAs for investors

**Limited supply options and insufficient incentives** challenge uptake of RE projects and PPAs across CPs

**Limited liquidity or non existing power exchange (wholesale market) and advanced B2B products** pose challenges for off-takers and producers

**Lack of legal and regulatory certainty** hampers all types of PPAs



### Recommendations

**Urgent need to expand RE projects and upgrade infrastructure**

**Remove retail price regulation and liberalize retail markets** to reflect true energy production costs and boost RE energy investment










**Have clear strategy and introduce RE incentives and offtake options** to increase investment attractiveness and RES installed capacities

**Developing PX and/or market coupling** to create liquidity and healthy wholesale market.  
**Stimulate utilities to introduce adequate B2B products**

**Stronger regulatory frameworks and enhanced market transparency** by transposing & implementing EU acquis

# CPs face similar challenges, with some exceptions, but unique recommendations provide a clear path forward

## Improvement recommendations for each PPA driver

		RES demand	RES supply	Electricity prices	Supply options	WHS market	Legal&regulatory
<b>Serbia</b>		Promote the installation of RE supply, and benefits of cPPA		Retail prices should follow competitive market logic	Consider limiting utility PPA tenor to avoid market closure	Start building offtaker confidence and sleeving option availability	Introduce CBAM, conclude transposition, etc.
<b>Bosnia and Herzegovina</b>		Educate offtakers on opportunities & benefits of cPPA		Retail prices should follow competitive market logic	Define role of utility PPA / CfDs & increase clarity on NECP targets	Engage in market coupling, implement B2B products, etc.	Introduce CBAM, ensure GoO recognition, etc.
<b>Montenegro</b>		Educate offtakers on opportunities & benefits of cPPA	Define policies to incentivize non-hydro RES installed capacity growth	Retail prices should follow competitive market logic	Define role of utility PPA / CfDs & increase clarity on NECP targets	Engage in market coupling, implement B2B products, etc.	Introduce CBAM, ensure GoO recognition, etc.
<b>Kosovo*</b>		Educate offtakers on opportunities & benefits of cPPA		Retail prices should follow competitive market logic		Engage in market coupling, implement B2B products, etc.	Amend laws to define and incorporate renewable PPAs
<b>Albania</b>		Educate offtakers on opportunities & benefits of cPPA	Increase clarity on various RES technologies targets for 2030 and 2040	Retail prices should follow competitive market logic	Define role of utility PPA / CfDs & increase clarity on NECP targets	Engage in market coupling, implement B2B products, etc.	Amend laws to allow direct PPAs between producers & consumers
<b>North Macedonia</b>		Promote the installation of RE supply, and benefits of cPPA vestors		Retail prices should follow competitive market logic	Define role of utility PPA / CfDs & increase clarity on NECP targets	Engage in market coupling, implement B2B products, etc.	Implement state-backed guarantees to reduce SME PPA default risk
<b>Georgia</b>				Retail prices should follow competitive market logic	Define role of utility PPA / CfDs	Engage in market coupling, implement B2B products, etc.	Open access to corporate consumers to engage in PPA
<b>Ukraine</b>					Define role of utility PPA / CfDs & increase clarity on NECP targets	Implement B2B products and introduce operational GOs registry	Adoption of legislation that define PPA as a standard contract on the market
<b>Moldova</b>		Promote the installation of RE supply, and benefits of cPPA	Significantly increase installations of wind and solar capacities	Retail prices should follow competitive market logic	Define role of utility PPA / CfDs & increase clarity on NECP targets	Introduce GoOs, engage in market coupling, intro B2B products	Open access to corporate consumers to engage in PPA

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# End of document



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