

# Renewable energy potential in **Romania** and the **CESEC** region













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**EUFORES Workshop: Perspectives for renewables in Romania and the CESEC region** 

#### **About IRENA**

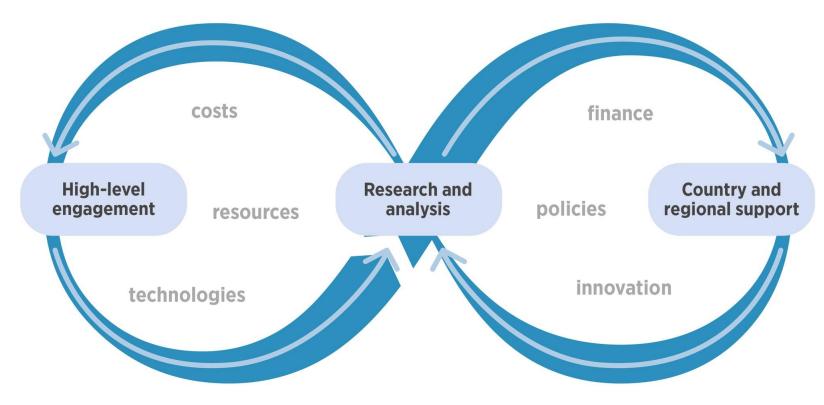




Established in 2011.

Headquartered in Abu Dhabi, UAE.

160 Members and23 States in accession.



Promote the widespread adoption and sustainable use of all forms of renewable energy worldwide







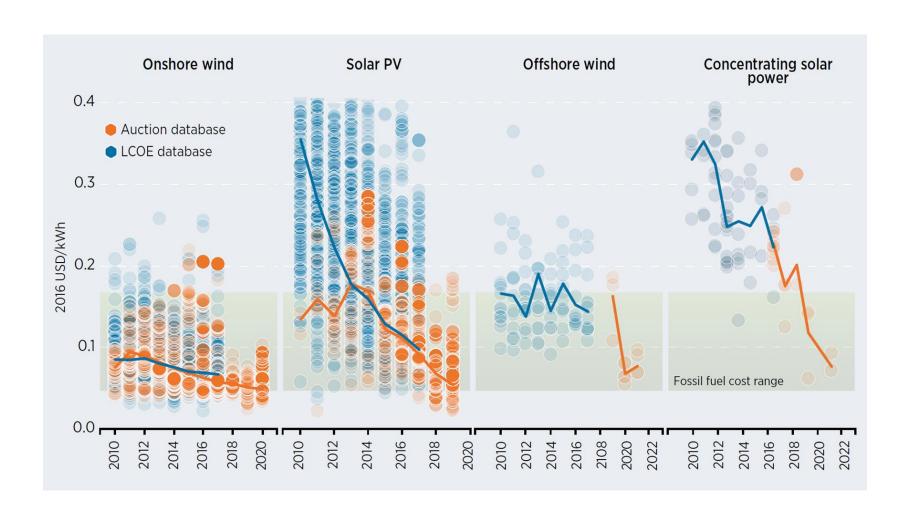






#### **Global Levelised Cost of Electricity**





### LCOE reduction in the period 2010 - 2017





**73%** 



Solar PV



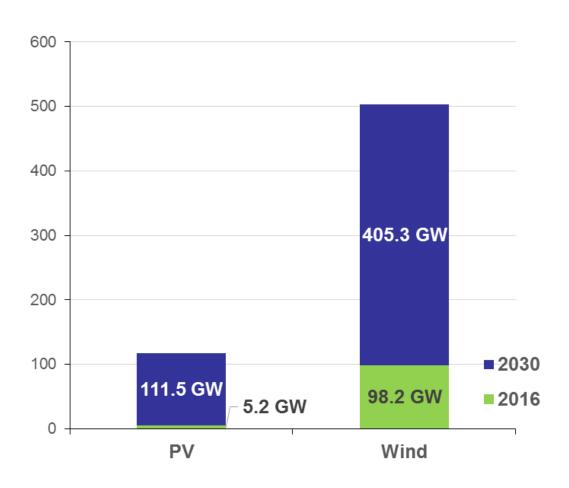




### **Cost-competitive Solar PV and Onshore Wind Power Potential in South East Europe**







#### **Today**

**127 GW** 

of RE could be implemented in a cost-competitive way.

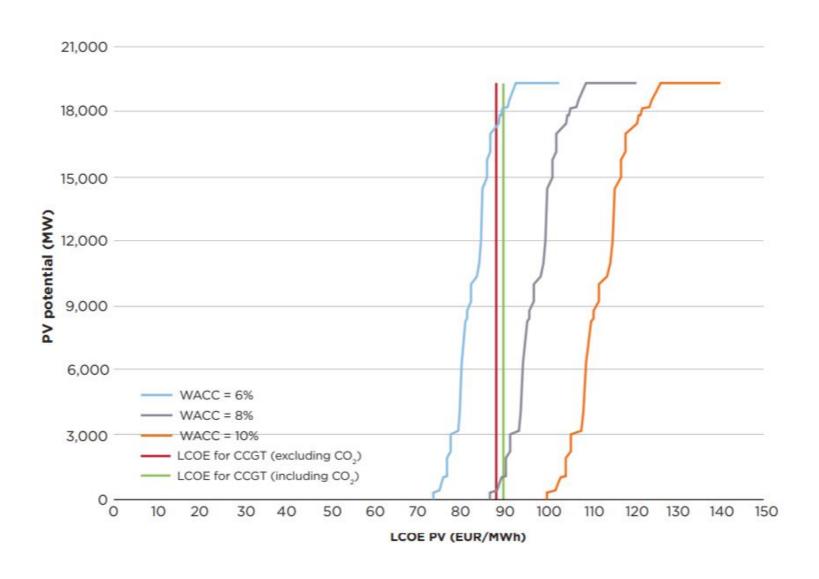
**By 2030** 

**620 GW** 

Wind and Solar PV cost-competitive potential

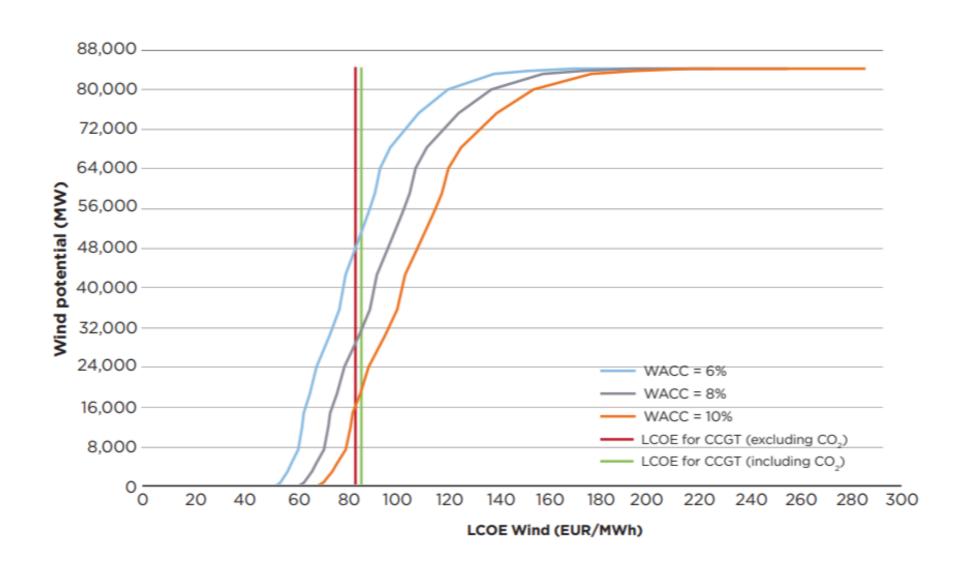
## **Romania**: Up to 18 GW of cost-competitive solar PV potential available today





### Romania: Up to 50 GW of cost-competitive wind potential available today





#### REmap for CESEC countries



#### **Objectives**

- Support to Contracting Parties of Energy Community in setting 2030 targets and measures
- ➤ To identify opportunities for further **regional integration** of energy systems
- ➤ To identify **cost-effective technical options** to accelerate renewables deployment by 2030





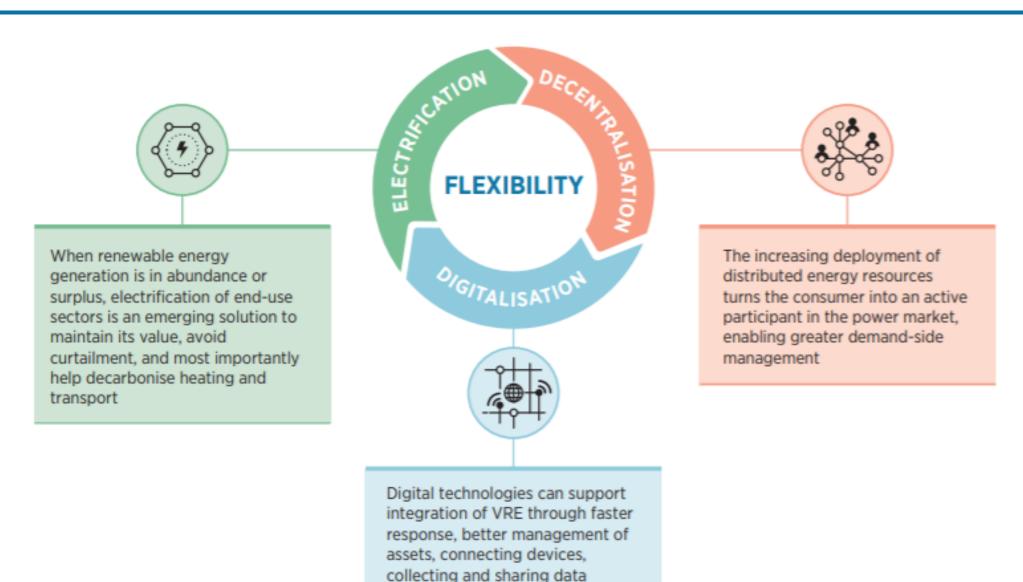
The boundaries and names shown on this map do not imply any official endorsement or acceptance by IRENA.

#### REmap for the European Union: February 2019

EU can double the RE share in its energy mix from some 17% in 2015 to 34% in 2030

#### Innovation trends – drivers of flexibility





#### IRENA's report details 30 innovations from 4 dimensions





#### **Enabling technologies**

- 1. Utility-scale batteries
- 2. BtM batteries
- 3. EV smart charging
- 4. Power-to-heat
- 5. Power-to-hydrogen
- loT
- 7. Al and big data

- 8. Blockchain
- 9. Renewable mini-grid
- 10. Supergrids
- 11. Increased flexibility of conventional power plants

- 12. Aggregators
- 13. P2P trading
- 14. Energy-as-a-service

#### **Business models**

- **15.** Community ownership model
- **16.** Pay-as-you-go model

#### System operation

- **25.** Expanded role of DSOs in managing DERs
- **26.** Enhanced co-operation between TSOs and DSOs
- **27.** Advanced renewable generation forecasting
- **28.** Innovative operation of pumped hydro storage
- **29.** Storage as virtual transmission lines

INNOVATION DIMENSIONS

**30.** Dynamic line rating for transmission system operation

- 17. Increase time granularity
- 18. Increase space granularity

#### Market design

- New products on ancillary service markets
- 20. New capacity markets
- 21. Regional markets
- 22. Time-of-use tariffs
- DER participation in wholesale markets
- 24. Net billing schemes





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#### A holistic view of the energy system is needed



