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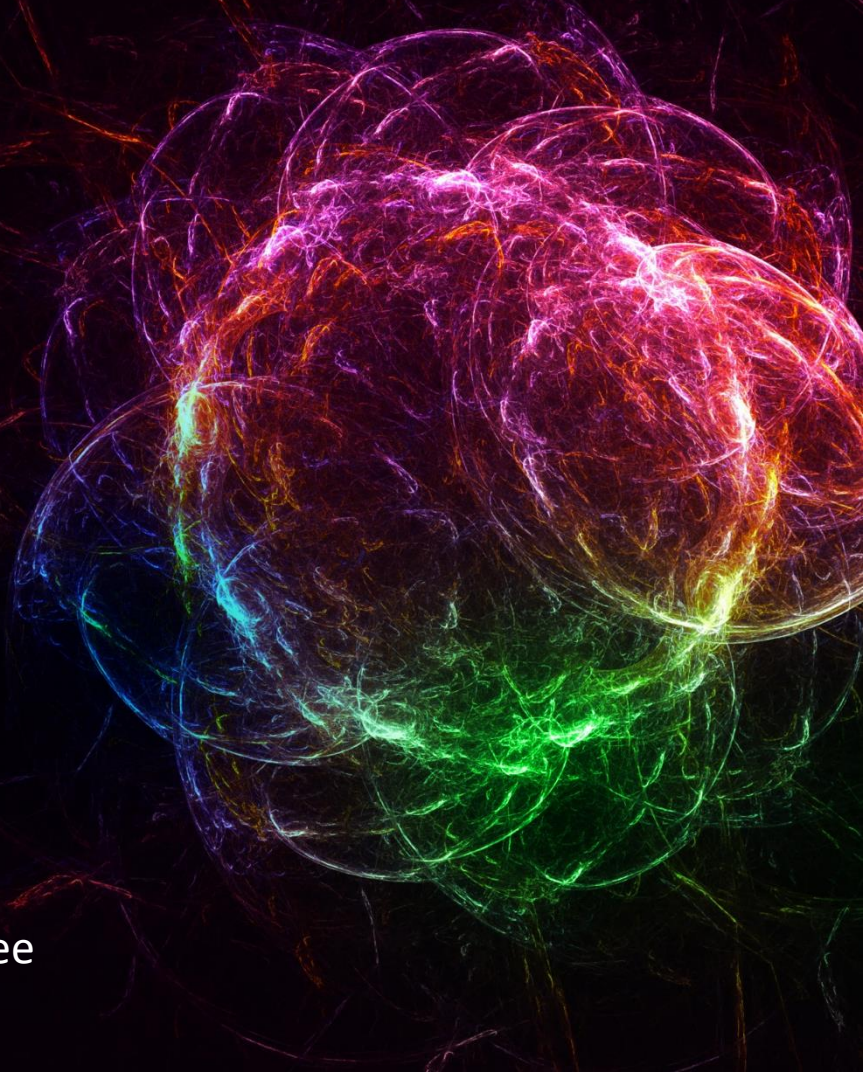
South East Europe Energy Outlook 2021/2022



Presentation in Belgrade, Serbia

May 11, 2022

Energy Efficiency, CHP and RES in SEE

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1. SE Europe & SE Mediterranean - Current Situation

The SE European region is characterized by distinctly different (in terms of structure and operation) and frequently segregated energy markets in various stages of EE & RES development:

The EU member states (Greece, Romania, Cyprus, Bulgaria, Croatia and Slovenia) have implemented several steps toward the smooth adaptation of EU energy and environmental policies and directives. Among them only Greece, Cyprus and Slovenia belong to Eurozone.

- The West Balkan countries (Albania, Serbia, Bosnia & Herzegovina, Montenegro, Kosovo, N. Macedonia) are in a transition process within the Energy Community framework.
- Turkey with a rapidly growing economy has become one of the fastest growing RES markets in the world. Projections show that demand growth trend will continue. Turkey is the biggest energy hub in the region.
- Israel is an energy isolated country. All of the electricity consumed in Israel is generated locally with no imports from oversees. In addition, Israel does not export any electricity to neighboring countries, as no cross-border interconnections exist and nothing is planned.
- Recently Israel set a goal of generating 20% of its electricity from solar energy, by 2025 and 30% by 2030.

2.1 ENERGY EFFICIENCY IN SE EUROPE

- All states in the Region have transposed the EU legislation on Energy Efficiency, EE, (EED – Green Deal, etc.)
- The Outlook analyses the NEEAP and NECP of each SE European M-S, as EU requested each Member State, M-S, to set their own indicative national EE target, to prepare and publish a three-year National EE Action Plan, NEEAP, as well as to prepare an annual progress report.
- The Outlook presents the incentives/plans for the promotion of EE and EE Programmes funded by EU & IFIs.

2.1 ENERGY EFFICIENCY IN SE EUROPE

SEE EU M-S National Energy Efficiency targets for 2020 and EU-28

EU MEMBER STATE	PRIMARY/FINAL ENERGY CONSUMPTION IN 2020 [MTOE]	
	PEC	FEC
Bulgaria	16.9	8.6
Croatia	10.7	7.0
Cyprus	2.2	1.9
Greece	24.7	18.4
Hungary	26.6	18.2
Romania	43.0	30.3
Slovenia	7.1	5.1
Sum of indicative targets SEE EU M-S	131.2	89.5
Sum of indicative targets EU-28	1,543.1	1,095.8

2.1 EE – NEEAPs & NECP OF SEE COUNTRIES

Country	In compliance with EED	Targets by 2030
Bulgaria	√	PEC 17.46 Mtoe – FEC 10.32 Mtoe
Croatia	√	PEC 8.3 Mtoe – FEC 6.89 Mtoe
Cyprus	√	PEC 2.4 Mtoe – FEC 2.00 Mtoe
Greece	√	PEC up to 21.0 Mtoe – FEC 16.5 Mtoe ambitious twice revised
Hungary	√	FEC up to 18.75 Mtoe (2005), meaning steady annual saving 0.17 Mtoe or 0.8% annual saving
Romania	√	PEC: BAU=58.7 Mtoe to 32.3 Mtoe (-45.1%) FEC: BAU=43.2 Mtoe to 25.7 Mtoe (-40.4%)
Slovenia	√	Up to PEC 6.35 Mtoe and FEC : 4.72 Mtoe
Israel	√	PEC: BAU = 8.25 Mtoe to 6.88 Mtoe (-16.7%)
Turkey	√	-23.9 Mtoe of PEC
Albania – B & H-Montenegro - N. Macedonia - Serbia	NECPs expected in late 2021	

2.1 INCENTIVES FOR PROMOTING EE

Country	Actions
Bulgaria	DESIREE Programme grant 10.9 m€ for gasification 10,000 households Important role of European Structural Fund, ESF
Croatia	EE of Family Houses (2014-20) 26.7m€ - Renovation of Public/Apartment buildings 211 m€ + 25 m€ loan from IFIs
Cyprus	ESF: 8.7 m€ for SME – 18.4 m€ for households – 20 m€ for Public buildings – 1.17 m€ for pilot HECHP (hospitals, etc)
Greece	Envisaged National EE Fund (lending & guarantee fund) +role of ESCOs – Important role of EE in households of EXOIKONOMO -3rd phase (500+ m€)
Hungary	EU- Operational Programmes/ESF for EE actions in households/SMEs
Slovenia	EE in households via subsidies/soft loans (100% for weak households) – ESF
Israel	145m$ for qualified EE projects via tender
Serbia	Funds for EE in all sectors by EU – JICA - UNDP
Turkey	Actions for EE through incentives – Loans from IFIs (WB, etc.)
Albania - B & H - Kosovo-Montenegro - N. Macedonia	Critical the role of IFIs (EU/WB/UNDP/etc) and International Funds

2.1 ENERGY EFFICIENCY IN SE EUROPE

- EE in building sector (especially public buildings) is acting as a “locomotive train” pushing forward other sectors as transportation and SMEs/Industry.
- Summing up the situation of energy efficiency in SEE states, it is evident that there is an **ongoing plethora of national efforts and programmes** in support of the EU long-term target to become the first “climate-neutral” continent, by 2050.
- However, as Eurostat announced in early 2020, the EU energy consumption is rising despite the efforts to reduce it across Europe.
- The EU-27 gross domestic product grew rapidly, between 2014 to 2017, from €11,782billion to €13,964billion, indicating that economic activity has not yet decoupled from energy consumption.

2.1 ENERGY EFFICIENCY IN SE EUROPE

- The COVID-19 pandemic, which severely hit the European Union from 2020 onwards, is likely to result in a decrease in energy consumption in 2020, as a result of the wide spread lockdowns and slowdown of the economic activities.
- However, it is expected that economic recovery will lead to a rebound in energy consumption, or at least bring it up to its previous levels.
- Accordingly, the proposed NECPs by all EU M-S in the region and the ones to be submitted shortly from the other states, are of great importance and they must be applied with reverence and great attention to detail, in order to achieve all of the proposed targets.

2.2 COGENERATION IN SE EUROPE

The status of CHP is varying in the SE Europe states, since there are countries without any or with limited, installed CHP capacity, especially for residential and industrial purposes and other with long tradition.

M-S	CHP electricity generation, TWh	Share of CHP in total gross electricity generation	total CHP electrical capacity, GW	of which from units with PES ≥ 10%	total CHP Heat capacity, GW	of which from units with PES ≥ 10%	Primary energy savings (PJ)
EU- 27	**344.55**	**11.7%**	**133.60**	**112.78**	**280.48**	**222,74**	**1,2644.56**
Bulgaria	3.64	7.8%	1.14	1.04	4.33	3.98	13.59
Croatia	1.99	14.6%	0.86	0.68	2.16	1.43	6.37
Cyprus	0.06	1.1%	0.02	0.01	0.03	0.02	0.04
Greece	2.37	4.5%	0.43	0.35	0.93	0.55	5.13
Hungary	4.29	13.4%	1.49	1.26	2.99	2.18	11.62
Romania	5.39	8.3%	1.62	0.97	4.93	2.02	11.59
Slovenia	1.30	8.0%	0.39	0.26	0.88	0.51	4.60
Total in SEE M-S	**19.04**	**8.2%**	**5.95**	**4.56**	**16.23**	**10.69**	**52.94**

EU-27 **11%**

2.2 COGENERATION IN SE EUROPE

The status of the regulatory framework for CHP for all SE Europe countries

Country	Framework for CHP	Comments
Albania	No regulatory framework yet	
Bosnia and Herzegovina	Law on the use of RES & Efficient Cogeneration (Federation of Bosnia and Herzegovina-FBiH entity); Law on the use of RES & HECHP (Republic of Srpska-RS entity)	
Bulgaria **Croatia** **Hungary** **Greece** **Montenegro** **Romania**	2012/27/EU & 2018/2002/EU transposed into national laws	National Laws referring to High-Efficiency CHP
Cyprus	2012/27/EU & 2018/2002/EU transposed into national law: N.174(I)/2006; N.54(I)/2012; N.150(I)/2015	CHP capacity of each unit < 5 MW_e and max total capacity for all units up to 20 MW_e

2.2 COGENERATION IN SE EUROPE

The installed capacity of the CHP units, in MW_e/MW_{th}, and its usage per country

Country	Installed capacity, MW_e/MW_{th}	Usage	Comments
Albania	N/A	-	Potential for 1-1.5 MW_{th} with biomass, in coming years
Bosnia and Herzegovina	14.45/112.5	District Heating	2021 commissioning
Bulgaria	1,141/4,331	District Heating	Eurostat Data for 2018
Croatia	860/2,155	DHS, Industry	Eurostat Data for 2018
Cyprus	16/30	Agriculture	Eurostat Data for 2018
Hungary	1494/2986	DHS, power production, industry	Eurostat Data for 2018
Greece	425/926	Agriculture, DHS, industry	Eurostat Data for 2018
Israel	761/- 218/- 3-16/-		6 units connected to Grid 3 units in commissioning Promotion of small-scale CHP
North Macedonia	282/-	Power production	
Romania	1617/4926	DHS, power production, industry	Eurostat Data 2018
Serbia	596/642	DHS/Industry	2913 Gwh_e – 2895 GWh_{th} (2019)

2.2 COGENERATION IN SE EUROPE

The incentives for the promotion of cogenerated electricity in all SE Europe countries

Country	Support Scheme	Comments
Albania	N/A	
Bosnia and Herzegovina	N/A	
Bulgaria	Priority of CHP connection to Grid, Obligatory purchase of cogenerated electricity at F-i-T, until 12/2018, Certificates of Origin, by 1/2019 and F-i-T replaced by F-i-P	From 1/2019 cogenerators have to sell to the Electricity Xchange at F-i-P
Croatia	Obligation to buy excess cogenerated electricity by the Transmission System Operator at certain proportion determined by Government's Ordinance issued every 31st October Regulation of the status of eligible electricity produced to eliminate inconsistencies Guarantee of origin for cogenerated electricity	Government provides State Aid programs for HECHP according to applicable rules on state aid in Croatia
Cyprus	Net-billing	-
Hungary	From 2011, energy policy shift as F-i-T scheme abolished for cogenerated electricity. Some units closed/paused activities, but, some other cogenerators formed regulatory centres, offering their flexibility to the Transmission System Operator, as virtual power plants.	Heat has a regulated price, set each year before the heating season. Decrease of cogenerated electricity by 26%, between 2010 to 2018.

2.2 COGENERATION IN SE EUROPE

- Summing up, the total installed CHP capacity in SEE EU M-S corresponds to 5.2% of the total installed capacity in EU-27.
- The share of CHP in gross electricity generation ranges from 8.2% to 11.2% in each country, which is lagging behind the average EU-27 share (26.8%).
- In addition, almost all SEE countries, with the exception of Albania, have integrated CHP units in their energy systems, mainly for providing useful heat to local district heating systems, for industrial applications or for agricultural purposes.

3.1 RES- The situation in the EU M-S

The EU member states (Greece, Romania, Cyprus, Bulgaria, Croatia and Slovenia):

- All the EU member countries of the region succeeded their 2020 RES goals for the electricity production. Croatia (31%) exceeded their EU-set targets by 11 percentage points, while Bulgaria (23.3%) beat its goal by 7 percentage points. All the countries, except Cyprus, generates more than a third of their electricity from renewables.
- Mature and well-developed RES Markets with special focus on wind and PV technologies
- Over the last ten years renewable energy and distributed energy resources have changed the market dynamics of the electricity system. During the period 2008–2018, most of the market growth has been driven by incentives
- An increasing share of renewable power in the electricity mix will help these countries to attain security of supply by reducing its share of electricity imports
- The transition to a “carbon-free” economy and the decarbonisation process will not be easy for Greece, Romania, Cyprus and Bulgaria
- The falling cost of renewable energy installations and the introduction of strong policies to cut down emissions have led policy makers to focus more on RES.

3.1 RES – The situation in West Balkan

The West Balkan countries (Albania, Serbia, Bosnia & Herzegovina, Montenegro, Kosovo, N. Macedonia)

- **the six countries lag significantly behind the rest of Europe in the modernisation of their energy sectors**, which are characterised by limited market mechanisms and limited private sector participation, insufficient and ageing infrastructure, high reliance on fossil fuels, late adoption of renewables (excl. hydro)
- **Albania, North Macedonia, Serbia and Kosovo have not yet reached their 2020 renewable energy targets** for the share of renewable energy in gross final energy consumption by 2020. Montenegro reached its national targets in 2015.
- need to invest considerably in moving from coal-fired to renewable energy production, and have a good potential
- According to estimation WB countries will need some €15bn in hydro investments or up to €20bn in wind investments to achieve their goals by 2030. Capacities of 12.2 GW for wind and 4.4 GW for solar power could be cost competitive in the region. The Western Balkans' current total power generation capacity is 18.6 GW
- RES developments: The main non-hydro emerging RES are primarily wind farms. Serbia and Montenegro built their first wind farms in 2017, the largest wind farm in the West Balkans, Čibuk 1, was inaugurated in Serbia in October 2019, with a capacity of 158 MW. In Bosnia, the first wind farm started operation in 2018 and two others are under construction. North Macedonia, has only one wind power plant,
- The solar projects in the region are still at an early stage with construction scheduled to start in Montenegro in 2022 and involves a 250 MW installation. The Government of North Macedonia has given the green light to develop a 415 MW wind farm and to build a 80 MW solar photovoltaic facility.

3.1 RES – In SE Mediterranean: Turkey & Israel

Turkey

- **Turkey has tripled its installed renewable capacity** to 46,000 MW and invested nearly €50 billion in renewable energy projects.
- **Turkey ranks sixth in Europe and 13th in the world in terms of renewable capacity**. It generated 12% of its electricity from wind and solar in 2020, compared to the world average of 9,4%.
- Among renewables, hydro has about 29,2 GW of generation capacity, followed 7.6 GW coming from wind energy and solar with about 6 GW.
- It is expected that installed solar photovoltaic capacity will rise to about 14 GW by 2023, with solar and wind reaching a combined capacity of 30 GW by 2030.
- Turkey is among the largest developing markets for solar heating systems and a considerable installed capacity of geothermal energy

Israel

- **Renewable energy in Israel accounted for a minor share of electricity production**, with a relatively small solar photovoltaic installed capacity (2 GW).
- There is a total of over 1.6 million **solar water heaters installed** as a result of pre-existing (since the 1960s) mandatory solar water heating regulations.
- In 2020, 70% of electricity came from natural gas, and 10% from renewables, almost all from PV, representing 6% of gross final energy consumption.

Renewable Energy Installed Capacity (MW) in SE Europe (2020)

Country	Total Installed Electricity Capacity	Hydro	Wind	PV	Biomass / Biogas	Geothermal	TOTAL RES Installed Capacity
Albania	2.212	2.110	0	3	0	0	**2.113**
Bosnia & Herzegovina	4.757	2.000	135	20	3	0	**2.158**
Bulgaria	12.165	3.200	700	1065	100	0	**5.065**
Croatia	5.122	2.200	738	70	77	16	**3.101**
Cyprus	1800	0	158	129	10	0	**297**
Greece	20.700	3.400	4.000	3.000	83	0	**10.483**
Kosovo	1.597	80	33	7	0	0	**120**
Montenegro	1.045	700	118	2	0	0	**820**
North Macedonia	4.408	692	37	26	11	0	**766**
Romania	23.028	6.600	3.040	1.380	133	0	**11.153**
Serbia	8.485	3.000	481	21	15	0	**3.517**
Total without Turkey	**85.319**	**23.982**	**9.440**	**5.723**	**432**	**16**	**39.616**
Turkey	93.000	29.200	8.056	6.700	877	1.550	**46.406**
Grand Total	**178.319**	**53.182**	**17.496**	**12.423**	**1.309**	**1.666**	**85.999**

3.1 RES Installed Capacity in SE Europe (%) w/ & w/o Hydro

Country	RES Installed Capacity % (With Hydro)	RES Installed Capacity % (Without Hydro)
Albania	98%	0%
Bosnia & Herzegovina	47%	3%
Bulgaria	37%	15%
Croatia	65%	18%
Cyprus	17%	17%
Greece	50%	35%
Kosovo	8%	3%
Montenegro	80%	11%
North Macedonia	22%	2%
Romania	50%	20%
Serbia	40%	6%
Turkey	50%	18%

3.1 RES for Power Generation and for Heating and Cooling

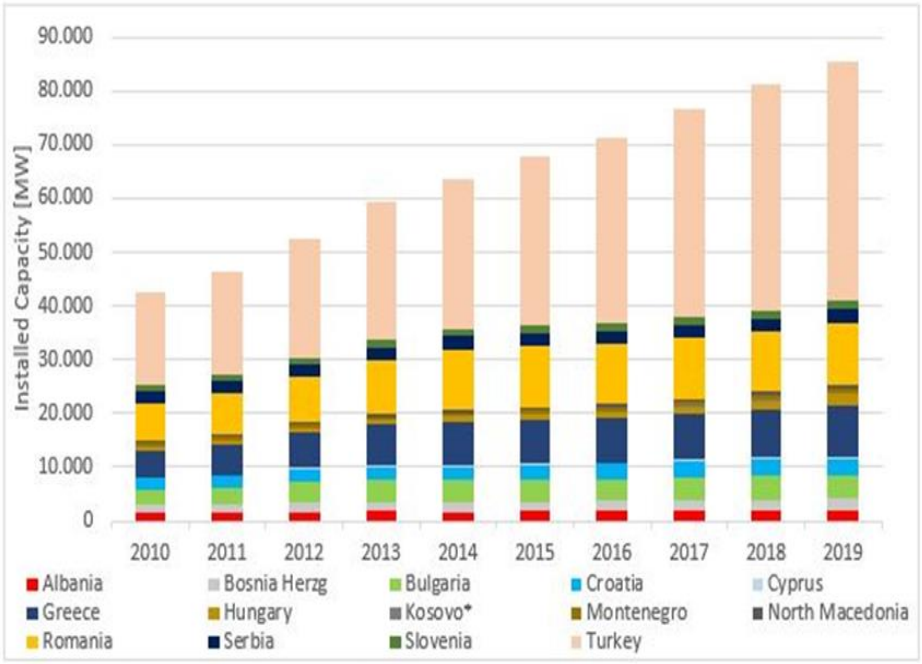
RES for Power Generation

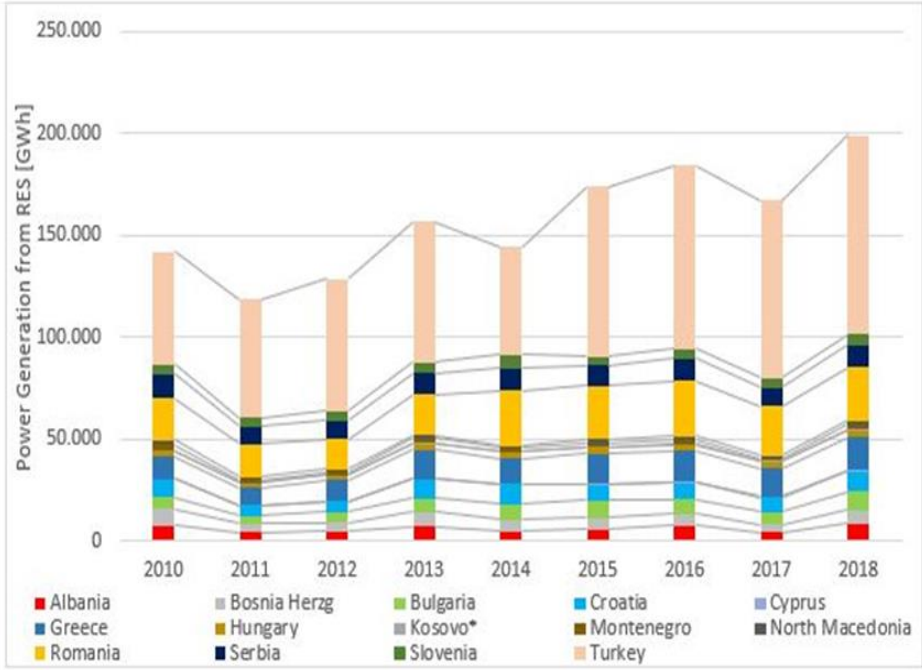
- Countries throughout SEE have high shares of electricity generated by an ageing fleet of coal-fired power plants.
- **The most important change for the region is the sharply falling share of coal- and lignite based generation**. Compared with 2017, it is forecast that less than half of the production from these fuels will remain in the system by 2030. The reduction will be compensated by an increase in RES generation of 20 TWh, in natural gas-based production (25 TWh) and in nuclear generation (11 TWh).
- **RES have increased their regional share in power generation to 33.89% in 2019**, i.e. by more than 5.5 percentage points compared to 2014, when they contributed 28.2%. In addition, in 2019, the share of RES in total regional electricity consumption rose to 33.2% from 26.3% in 2014.
- A diverse mix of flexible generation technologies in SEE (hydro technologies, flexible biomass, natural gas and storage) can facilitate the integration of RES – especially wind and PV.
- However, the promising potential of wind, solar PV and biomass is not yet reflected in the energy policy of most of the SEE countries. Only Turkey, Greece, Romania and Bulgaria are exhibiting an emerging trend towards alternative renewable energy sources.

RES for Heating ad Cooling

- The main source of RES for heating and cooling in SEE derives from biomass, shallow geothermal and solar thermal applications.
- Huge amounts of renewable heating and cooling can be supplied by solar thermal, geothermal and biomass to satisfy the entire heating and cooling needs of millions of buildings and also to satisfy in part the needs of industry.
- Many buildings in SE Europe have the potential to be independent of or less dependent on fossil fuels or electricity for heating and cooling. Progress is much slower in Croatia, Slovenia, Bosnia and Herzegovina, in N. Macedonia and Serbia.

Total Installed RES Capacity (MW) and Power Generation (GWh) from RES in SE Europe, 2010-2019





3.2 Wind Energy

- **Europe has a vast potential for the further utilisation of wind energy**. Currently only a small share of that potential has been deployed, except in Turkey, Greece, Bulgaria and Romania. The wind installed capacity is estimated at 9.5 GW (excl. Turkey) while wind installations in Turkey reached the 8 GW in 2021.
- The region has a significant transformation potential towards a low carbon energy system and wind energy represents a significant share.
- 500 GW of wind potential is available in South East Europe, which currently is not being tapped.
- **Administrative barriers** result in long project development periods for wind energy projects as is the case in B&H, Kosovo and Serbia but also in EU M-S of the region.
- Such delays lead to a higher risk perception by investors while it slows power plant deployment and increases transaction costs.
- the Western Balkans offer many promising sites for wind utilisation.
- There are also investment opportunities for **offshore wind systems in Aegean and the Black Sea .**

3.3 Solar Energy

- **SE Europe has a vast potential for the further utilisation of solar energy,** but only a small share of that potential has been deployed, except in Turkey, Greece, Bulgaria and Romania
- Cumulative **installed solar PV capacity in the SEE region saw a 23% increase in 2018** compared to 2017
- Following the **retroactive taxes imposed on PV investors in Bulgaria, Romania, Slovakia and Greece in 2012-2013** it many developers turned their attention to rooftop residential (up to 30 kW) and commercial (from 100 to 1MW PV installations).
- The increasing cost of electricity and fossil fuels, and the unpredictability of these costs, are expected to drive the rooftop market, corporate renewables market and utility-scale projects under auction (tender) to play an increasing role in solar photovoltaic market development in the CEE & SEE countries by 2030 and beyond.
- Most of the countries in SEE Europe already possess solid foundations to attract large-scale investments in solar PV power, but more needs to be done to ensure a successful energy transition, such as strengthening enabling policies as well as regulatory and institutional conditions, and providing strong support schemes for renewables.
- SEE countries present a very good alternative for investors from the already mature and developed solar PV markets in Western Europe, and for investors from Asia, who are looking aggressively to secure stakes in new photovoltaic markets.
- **The solar PV market in the SEE region** has excellent growth prospects in 2020-2030 period. However, strong political will is still needed to build investor confidence, remove bottlenecks and maintain a reliable but dynamic framework for the remuneration of solar photovoltaic energy.
- Solar thermal applications provide renewable heating at a very competitive cost and have a very wide range of application potential in all SEE countries. **The most common applications are for domestic hot water (SWH) and space heating**. Cyprus is also the foremost country in terms of total installed capacity per capita, with 0.6 kW_{th} installed per Cypriot, corresponding to approximately 0.85 m^2 of collector area. In terms of consistent market growth, the biggest accolade goes to Greece.
- Solar heat potential of all Central and SE European countries combined is estimated at 93 GW_{th}, or 133.1 million m^2 of collector area.

3.4 Biomass - Biogas

- Biomass and Biogas constitute sectors with high energy potential, both, in South East Europe
- The use of solid biomass fuel for electricity generation has been applied progressively in SEE Europe over the last 20 years. Each country in SEE has different biomass type resources which can be tapped for use inside the country or exported nearby.
- **Forest-based biomass is dominant** in Montenegro, Bosnia-Herzegovina, Albania and North Macedonia. On the other hand, **agriculture is the main source** of biomass in Moldova, Ukraine, Serbia and Croatia.
- **Biomass could supply 10% to 15% of the energy needs in SE Europe countries**.
- Electricity generation via either co-firing in existing power plants or CHP is a realistic option for future investment in the SEE region
- **SEE region could potentially generate 157 MW from installed biogas power plants** (operating at 8,000 hours per year this would result in 0.11 Mtoe of energy per year).
- In most **SEE countries, biomass is the most important heating energy source**, in both rural and urban areas, accounting for 42% of the energy required for heating.
- In most rural areas in SEE, biomass is abundant and constitutes the primary source of heating for the majority of the population.
- Rural households account for 63% biomass consumption, and urban households for 37%.
- Unfortunately, **a significant share of biomass is used inefficiently** because of outdated equipment and the lack of wood drying before use.

3.5 Geothermal Energy

- **Turkey is a regional champion in geothermal energy applications** thanks to a combination of its underground resources and a stable tariff regime. The country ranked seventh in the world in terms of installed geothermal capacity at 1,550 MW in 2020.
- Other countries in Southeast Europe lag far behind the kind of investment seen in Turkey.
- Greece, Romania, Bulgaria, Slovenia and Croatia are seen as the only countries in of SEE with some relevant geothermal development potential.
- Croatia is the only country in the region apart of Turkey that have a geothermal plant with installed capacity of 16.5 MW and current output 10 MW because of the limited connection capacity of the local power grid. Another innovative advanced geothermal power plant is under development in Draškovec, in the NW of the country.
- In the rest of SEE, geothermal electricity potential is often marginal and uncertain.
- Besides electric power generation, **geothermal energy in SE Europe** (mainly in Greece, Turkey, Bulgaria, Croatia, Serbia and Romania) **is used today for district heating, as well as for heating and cooling,** relaxation facilities, recreation centers, greenhouses and other applications (low-enthalpy geothermal applications using GHPs).

3.6 Challenges for the further RES Development in the Region

There are several barriers to the development of renewable energy sources in SE Europe, including:

- **Green Deal**, at any cost, **with insufficient financial compensation will jeopardize energy security** and its geopolitical position and would pose serious competitive challenges even at local level.
- **Renewable energy investment remains fragile in SEE**. Without a stable policy and an adequate regulatory framework, regional investment in renewable energy will continue to be unstable.
- There are serious concerns on **renewable energy** and **public acceptance** is decreased.
- High costs involved in renewable energy power and the need for subsidies.
- **Ageing transmission and grid infrastructure that struggles to cope with large RES volumes.**
- Slow and unpredictable planning processes; regulatory uncertainty as most countries are transitioning towards competitive support schemes.
- Slowly developed target model (day-ahead and intraday markets).
- Limited regional market integration and a high cost of capital stemming from both the above and,
- **Lack of experience** in providing funding tools and limited comfort with lending to the sector **by the local banking sector.**

Total Anticipated Energy Investment per Sector 2021- 2030

	Project sector	Description	2021 Investment estimate (€ mn)	2017 Investment estimate (€ mn)
OIL	Upstream	• Field Exploration • Development of new oil and gas wells	63,000	38,790
	Downstream	• Refining (upgrading) • Loading Terminals • Storage facilities • Crude / Product Pipeline(s)		
GAS	Country Gas Network	• Grid development • Main intra country pipeline(s) • Storage facilities • FSRU and LNG Terminals	25,150	16,550
ELECTRICITY	Power Generation	• Lignite • Coal • Gas (including CHP) • Nuclear • Large Hydro	150,150	139,550
	Electricity Grid	• New H/V transmission lines • Upgrading and expansion of existing grid		
	RES	• Small Hydro • Wind farms • Photovoltaics • Concentrating Solar Power • Biomass (including liquid biofuels) • Geothermal	109,900	40,009
ENERGY EFFICIENCY		• Buidings • Industry • Electric vehicles	88,700	-
	Total anticipated investments by 2030		436,900	234,822
	Gas infrastructure		23,303	33,350
	Electricity Interconnections		8,440	4,700
	Cross-border energy projects (total)		**31,743**	**38,050**
	Grand Total		468,643	272,872

A large segment of the above investment is earmarked for RES power generation projects in photovoltaics, wind, large and mini hydro, biomass and geothermal energy. In fact, RES geared investment represents a disproportionate high amount as it is likely to exceed €100 billion for a projected installed capacity in the range of 30GW. Thus electricity and RES form the backbone of investment activity in the region's energy market and it is in this area that new business opportunities are mainly to be found.

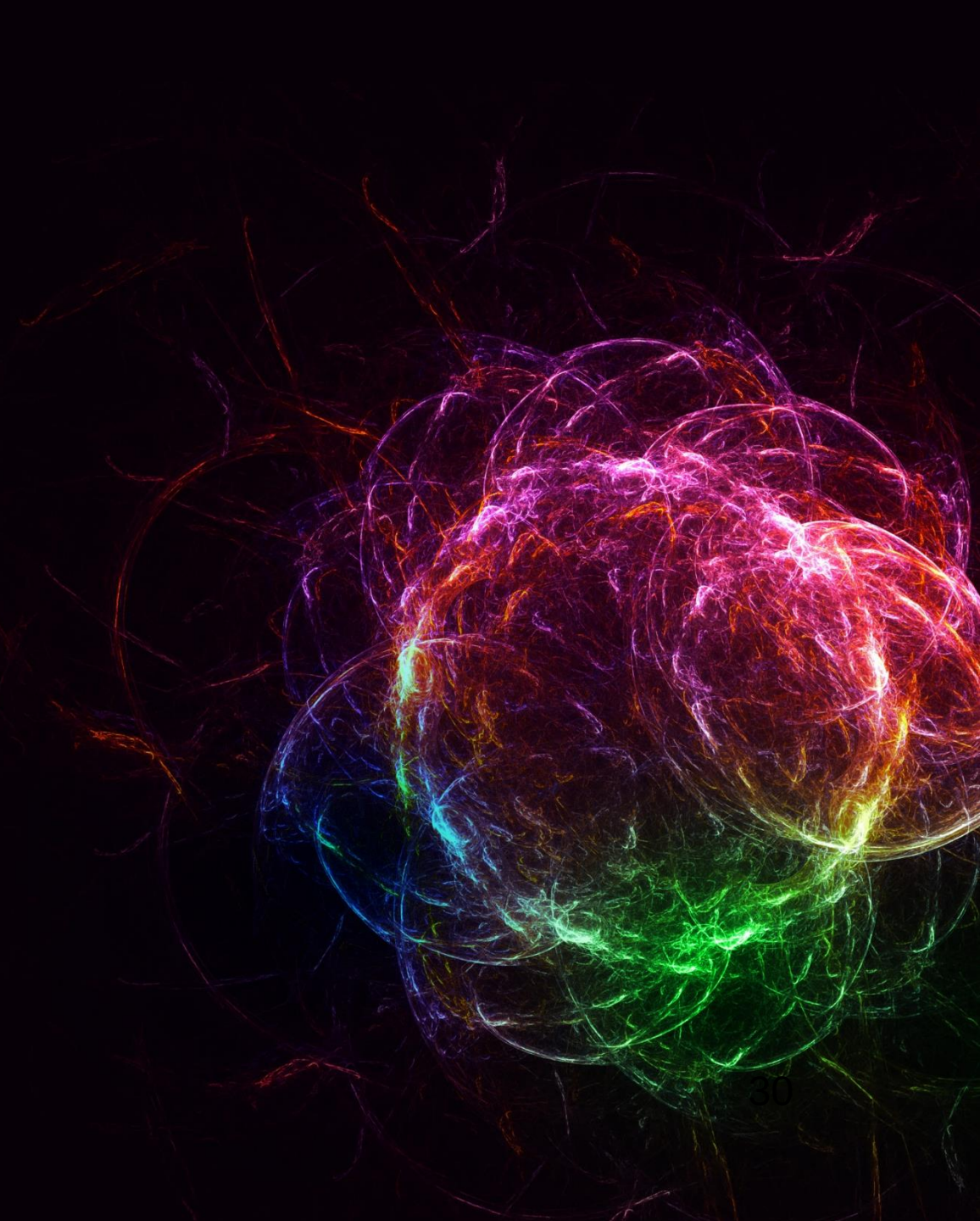
4. Conclusions

- **The potential EU climate-neutrality target for 2050 is unprecedentedly ambitious, especially for the SEE region**. While all EU M-S will face challenges in delivering the required transformational changes under the European Green Deal, it would do well for the EU to continue paying special attention to the SEE region. Given the different starting points of these countries, the state of the market and their political discourses, actual and practical solutions are needed in overcoming the existing barriers.
- The electricity-oriented **investments** correspond to approx. 34% of the total energy investments in the region at €150 billion. Following electricity investments are the RES related investments corresponding to 25% of the total at about €110 billion**,** while EE to 20%. Thus, Electricity EE and RES form the backbone of investment activity in the region's energy market and the area for new business opportunities.
- To harness RES potential in the region and progressively phase out fossil fuels, **the region needs updated renewable energy targets**, sustained investment in solar and wind technologies, incentives to develop modern biomass, geothermal and small hydro and a holistic policy framework to create new jobs and maximize socioeconomic value.
- **ESF and EED are highly beneficial instruments** for all states in the Region for **promoting EE** in all sectors (buildings, transportation, SMEs/industry).

IENE wishes to thank warmly
the above group of Sponsors and Supporters
without whose valuable contribution
and help this study could not have materialised.

South East Europe
Energy Outlook
2021/2022

Thank you.



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