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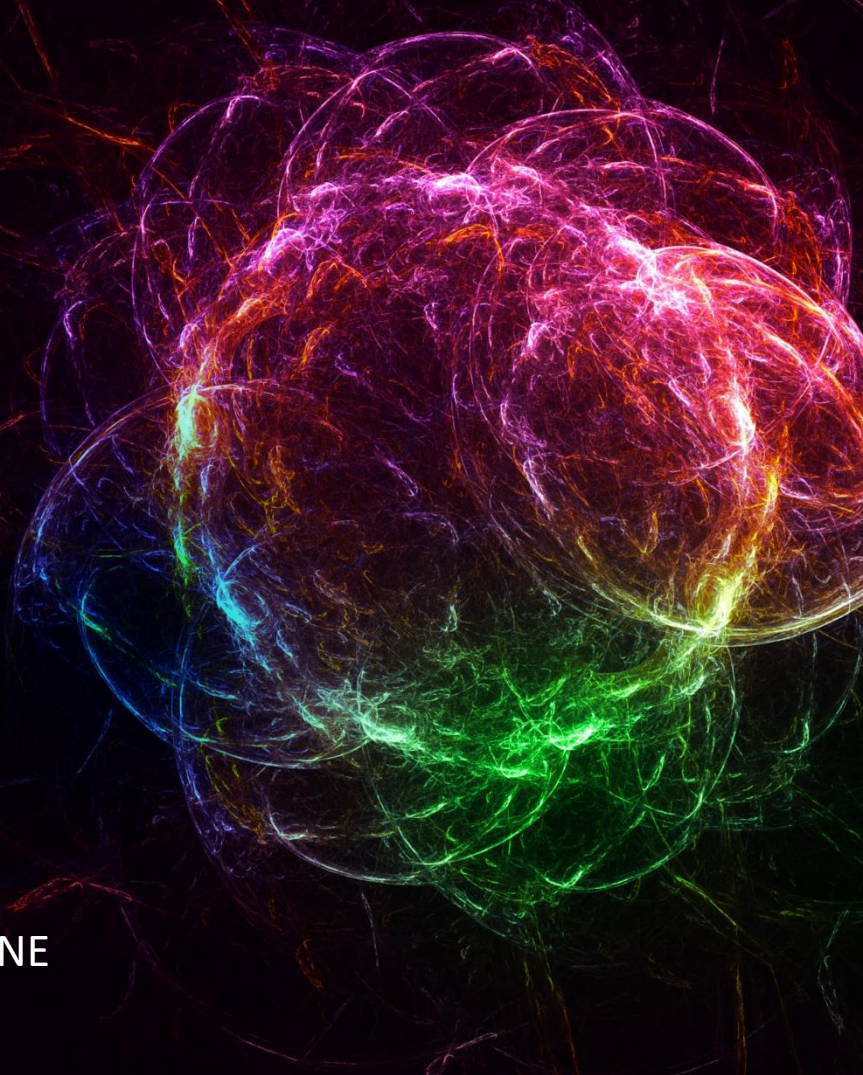
South East Europe Energy Outlook 2021/2022



Presentation in Athens, Greece

March 1, 2022

Energy Efficiency and CHP 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 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 EE 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 – Kosovo-Montenegro - N. Macedonia	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 -COMMENTS

- 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
Kosovo	137.4/-	District Heating	Production: 235,080 MWh_{th} in 2018-19
Montenegro	N/A		
North Macedonia	282/-	Power production	
Romania	1617/4926	DHS, power production, industry	Eurostat Data 2018

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.

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

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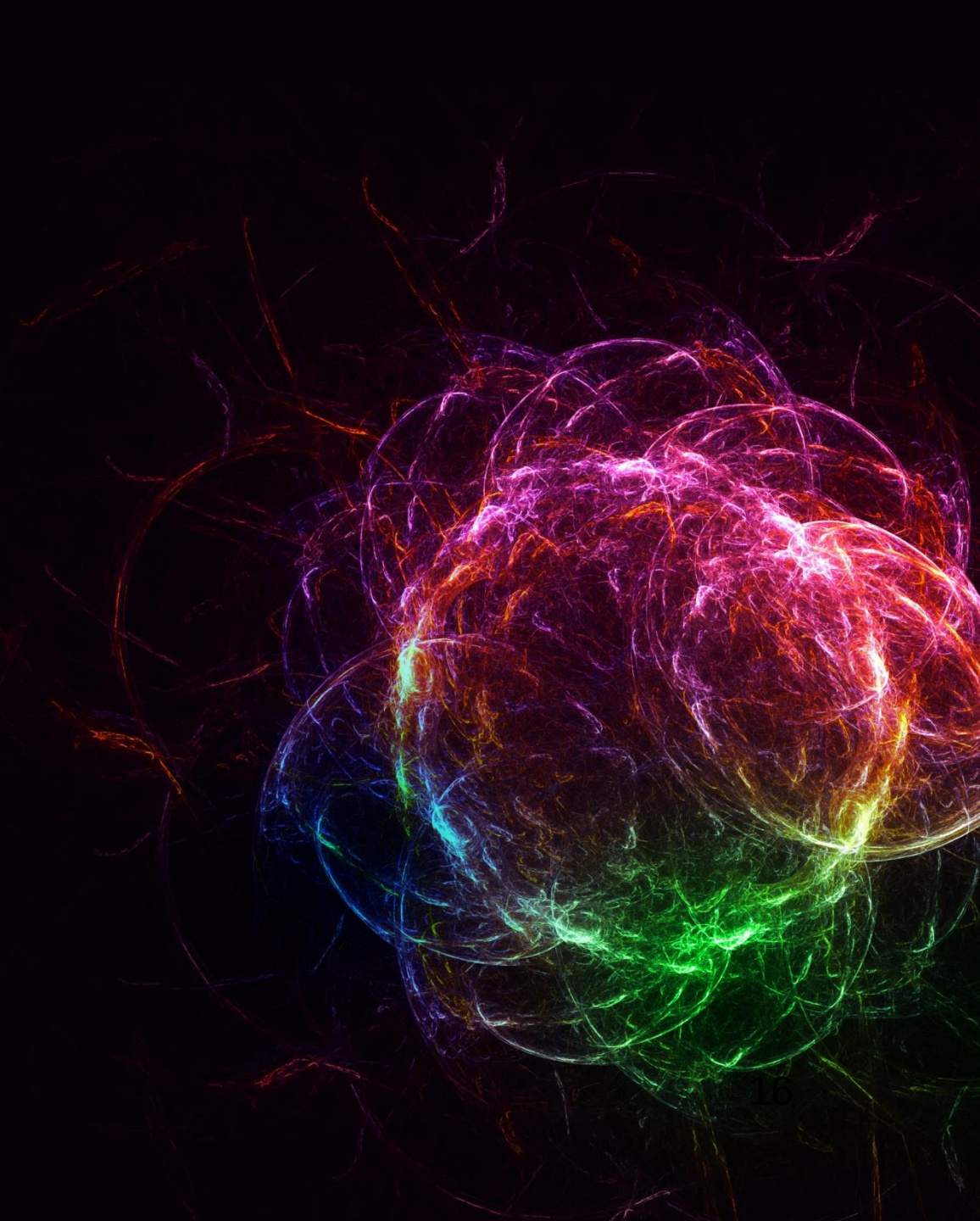
Thank you.



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