Energy, Sustainable Development, Money and Finance

Athenian Policy Forum International Conference

Athens, June 30, 2023

The Evolving Energy Scene in SE Europe

A Presentation by Mr. **Costis Stambolis**,
Chairman and Executive Director
Institute of Energy for SE Europe (IENE), Athens

INSTITUTE OF ENERGY
FOR SOUTH EAST EUROPE


CZECH REPUBLIC
SLOVAKIA
UKRAINE
AUSTRIA
HUNGARY
MOLDOVA
ROMANIA
CROATIA
BOSNIA & HERZEGOVINA
SERBIA
ITALY
BULGARIA
MONTENEGRO
GREECE
TURKEY
CYPRUS
SYRIA
LEBANON
ISRAEL
EGYPT


CZECH REPUBLIC
SLOVAKIA
UKRAINE
AUSTRIA
HUNGARY
ROMANIA
CROATIA
SERBIA
ITALY
BULGARIA
GREECE
TURKEY
SYRIA
EGYPT

The SE European Region Defined

Core countries

- Albania
- Bosnia and Herzegovina
- Bulgaria
- Croatia
- Cyprus
- Greece
- Hungary
- Israel
- Kosovo
- Montenegro
- North Macedonia
- Romania
- Serbia
- Slovenia
- Turkey

Peripheral countries

- Austria
- Egypt
- Italy
- Lebanon
- Moldova
- Slovakia
- Syria
- Ukraine

Source: IENE

Why is SE Europe Important? (i)

- SEE is a region of **great strategic interest** to the rest of Europe both in terms of political stability and energy security.
- As the latest energy crisis has clearly shown, following Russia's invasion of Ukraine, SE Europe has a major role to play in strengthening the **energy security** of the whole continent.
- The SE European area forms an important viaduct for East-West and South to North energy supply routes
- In terms of energy consumption, the whole **SEE represents roughly 20% of total European energy consumption** - not an insignificant number.
- Although highly dependent on oil and gas imports, SE Europe has **tremendous potential for higher indigenous energy production**, mainly renewables (solar, wind, hydro, geothermal, biomass) and natural gas, and could become net energy exporter to the rest of Europe (see hydrocarbon resources in the Black Sea, Adriatic, Ionian and the East Mediterranean).

Why is SE Europe Important? (ii)

- SEE is also **important from a nuclear perspective** since its has a well established network of nuclear power stations with plans already set in motion for further expansion.

- As the region has embarked on its arduous path towards decarbonisation and full decoupling from solid fuels by 2040, nuclear power has a vital role to play, in conjunction with RES in **enhancing the move toward clean fuels.**

- By 2030, SEE could become a net exporter of electricity, mainly deriving from RES and gas.

- From an economic perspective, SEE, part of the European land mass, together with Turkey, presents **serious investment and business opportunities,** especially in the energy sector as IENE's latest "SEE Energy Outlook" has shown (in 2017, the total energy investment potential for the 13-country group was estimated at €234,8 billion whereas in 2022 this figure had been revised upwards at €372,3 billion).

- The SE European area is undergoing substantial changes in its energy infrastructure and energy supply, to the extent that we are justified in our assertion of a SEE "evolving energy scene".

2020 Basic Energy Data for SE Europe, Including Turkey

Region	Final Oil Consumption (thousand tonnes)	Gas Inland Consumption (bcm/y)	Gross Electricity Production (TWh)
SE Europe	84,737.4 (20.6% of EU-27)	86.5 (21.6% of EU-27)	597.6 (21.4% of EU-27)
EU-27	411,530.4	399.6	2,786

Source: IENE study "SE Europe Energy Outlook 2021/2022", Athens, 2022

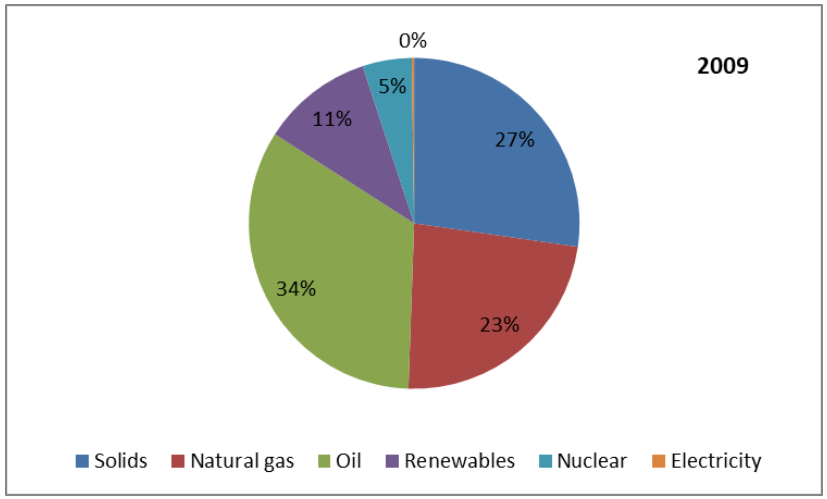
The magnitude of the region's oil, gas and electricity consumption is not insignificant compared to the total numbers involved at EU level.

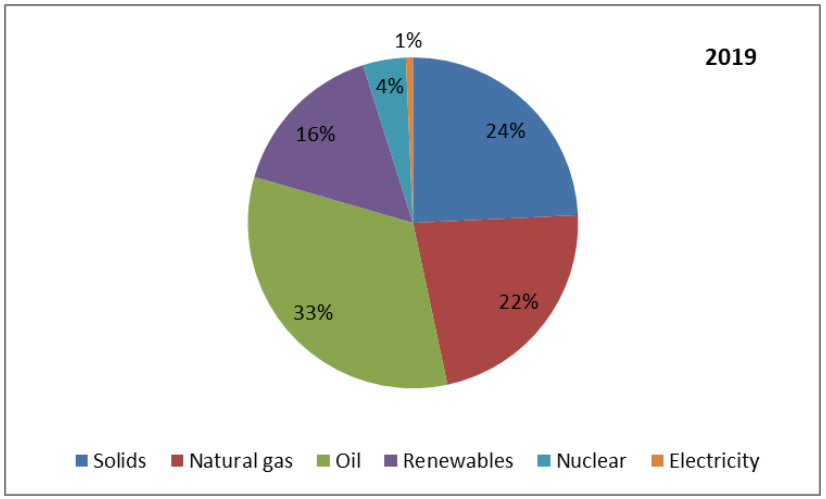
Key Regional Energy Issues

The following stand out as key issues of the regional energy landscape:

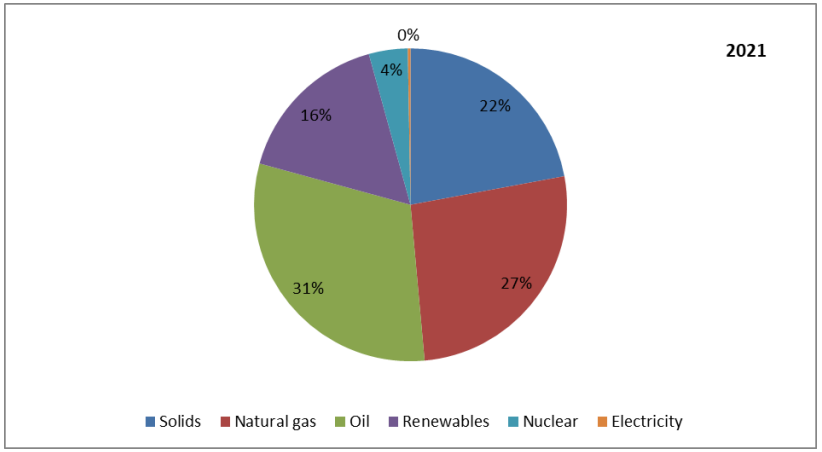
- High oil and gas import dependence (87% for oil and 82% for gas in 2021)
- SEE's path towards decarbonisation is uncertain and fraught with difficulties
- Coal/lignite is and will continue for sometime to be relevant for few countries
- If we are to consider the region as a whole, there is marked divergence between EU and SEE energy strategies
- RES growth is impeded due to past and present policy failures and electricity grid constraints
- SEE is more energy security vulnerable than the rest of Europe
- Gas has emerged as a strategic fuel during latest energy crisis, especially LNG
- Electricity's newcomer gas alters supply balance
- There is a lack of adequate electricity and gas interconnections
- Nuclear remains a viable but ill-considered (by certain governments) option for SEE power generation
- A more balanced energy mix could be the answer to several key issues (i.e. energy security, decarbonisation) and this where the real challenge lies.

SE Europe's Energy Mix, Including Turkey, 2009, 2019 and 2021 - High Oil and Gas Import Dependence



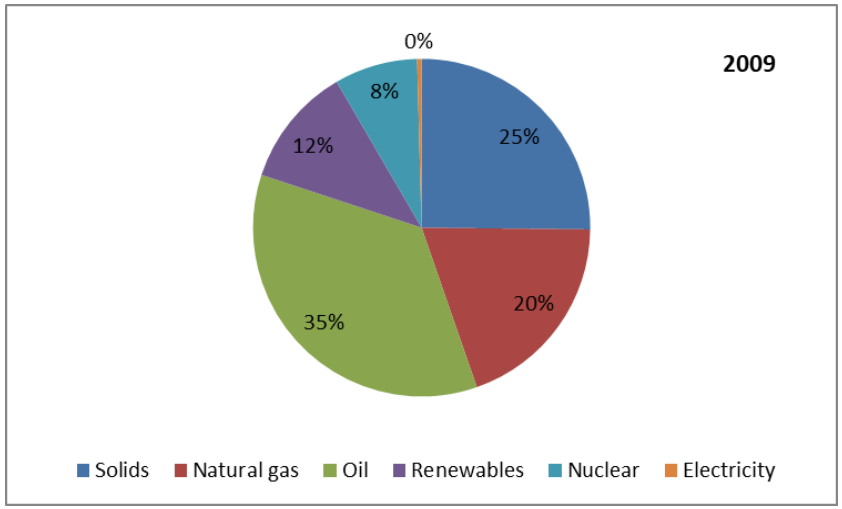


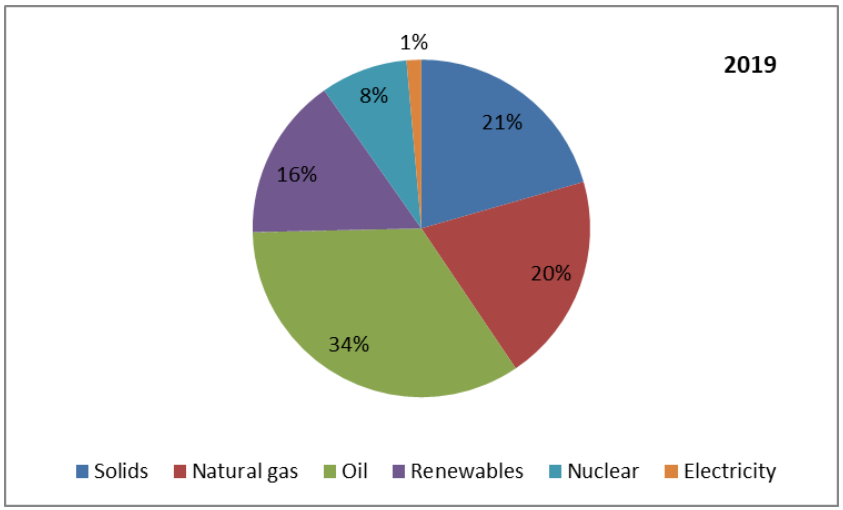
Over the last 10 years, we notice decreased solid fuel use, a marginal increase in gas consumption, a marginal drop in oil use, much higher RES deployment and less nuclear use.



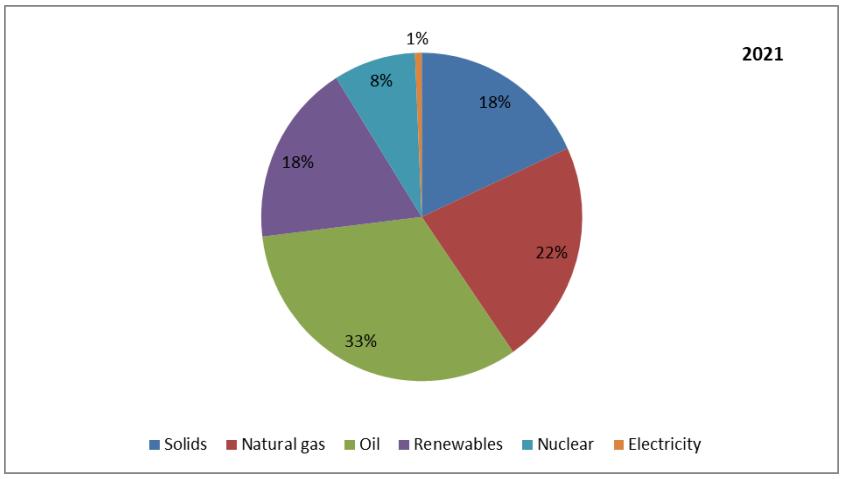
Source: Eurostat

SE Europe's Energy Mix, Without Turkey, 2009, 2019 and 2021 - High Oil and Gas Import Dependence





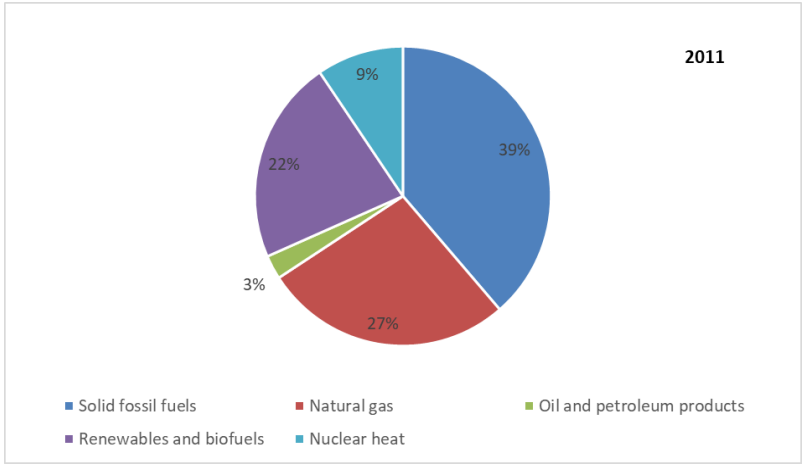
Over the last 10 years, we see considerably less solid fuel use, higher gas consumption, marginally less oil use, much higher RES deployment and steady nuclear use.

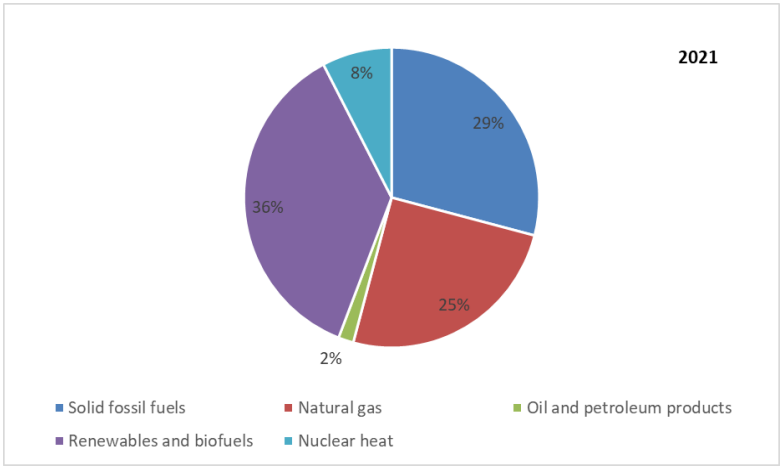


Source: Eurostat

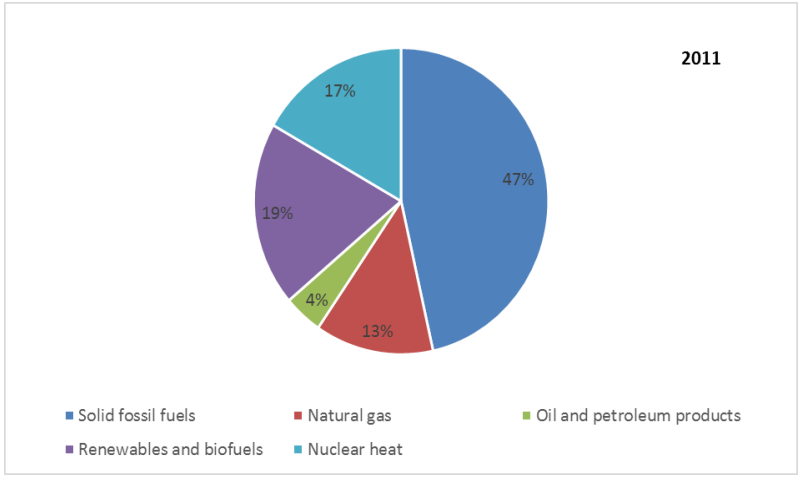
Power Generation Mix per Fuel in SE Europe (2011 and 2021), **With and Without Turkey**

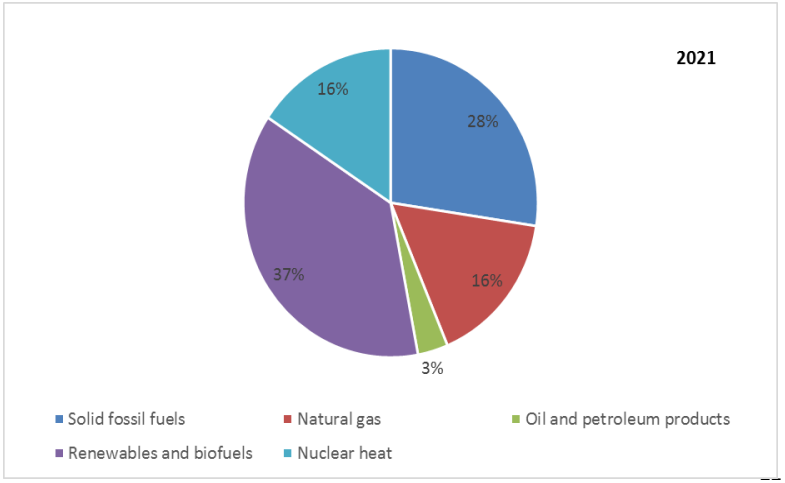
With Turkey





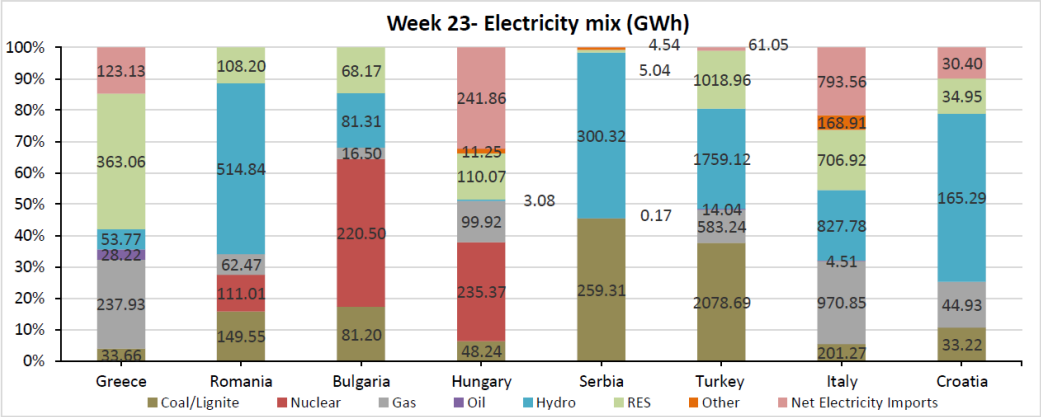
Without Turkey



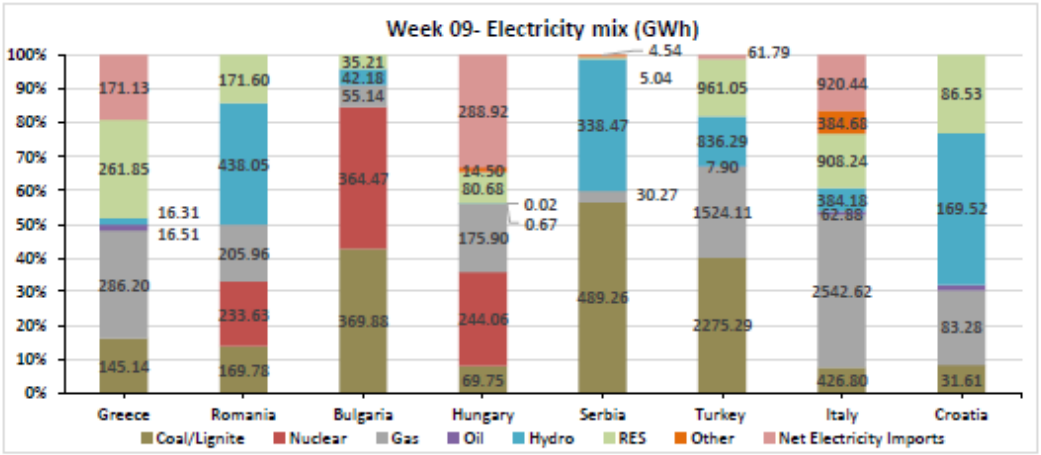


Sources: Eurostat, IENE

Power Generation Mix per Fuel in SE Europe for Few Typical Weeks (Week 9 and 23)



Note: (a) Hydro includes also discharges from pumped storage units (b) Net electricity imports of Serbia do not take in account exports towards Kosovo and Metohija (c) Greece's electricity mix includes the RES and conventional oil units of Crete as of Week 44 2021.

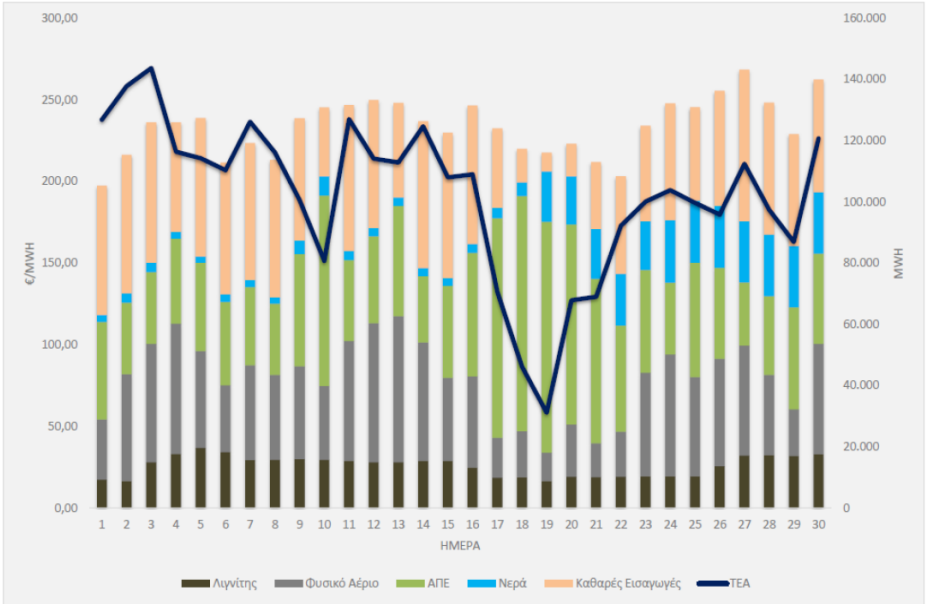


Note: (a) Hydro includes also discharges from pumped storage units (b) Net electricity imports of Serbia do not take in account exports towards Kosovo and Metohija (c) Greece's electricity mix includes the RES and conventional oil units of Crete as of Week 44 2021.

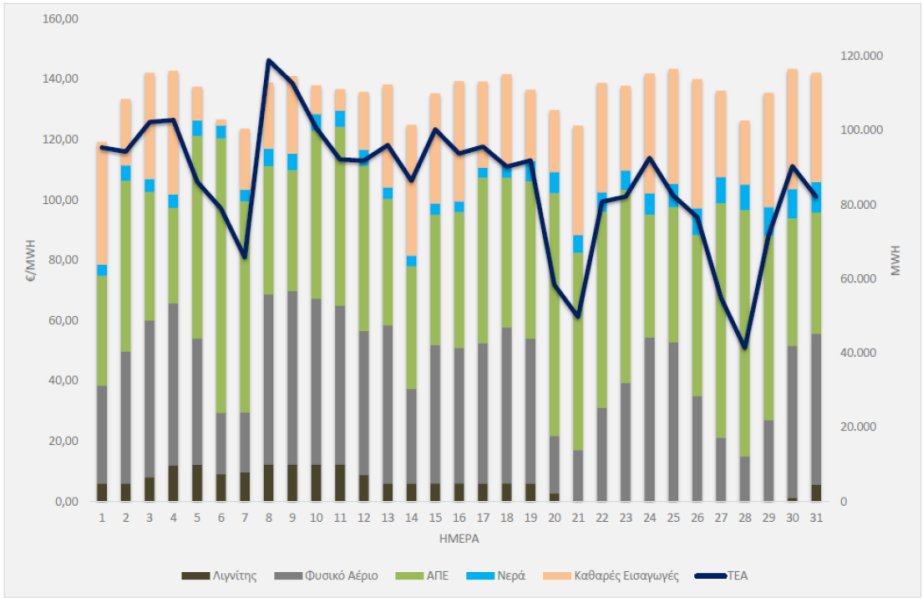
Source: IENE

Fuel Mix per day in Greece (January and May 2023)

January 2023

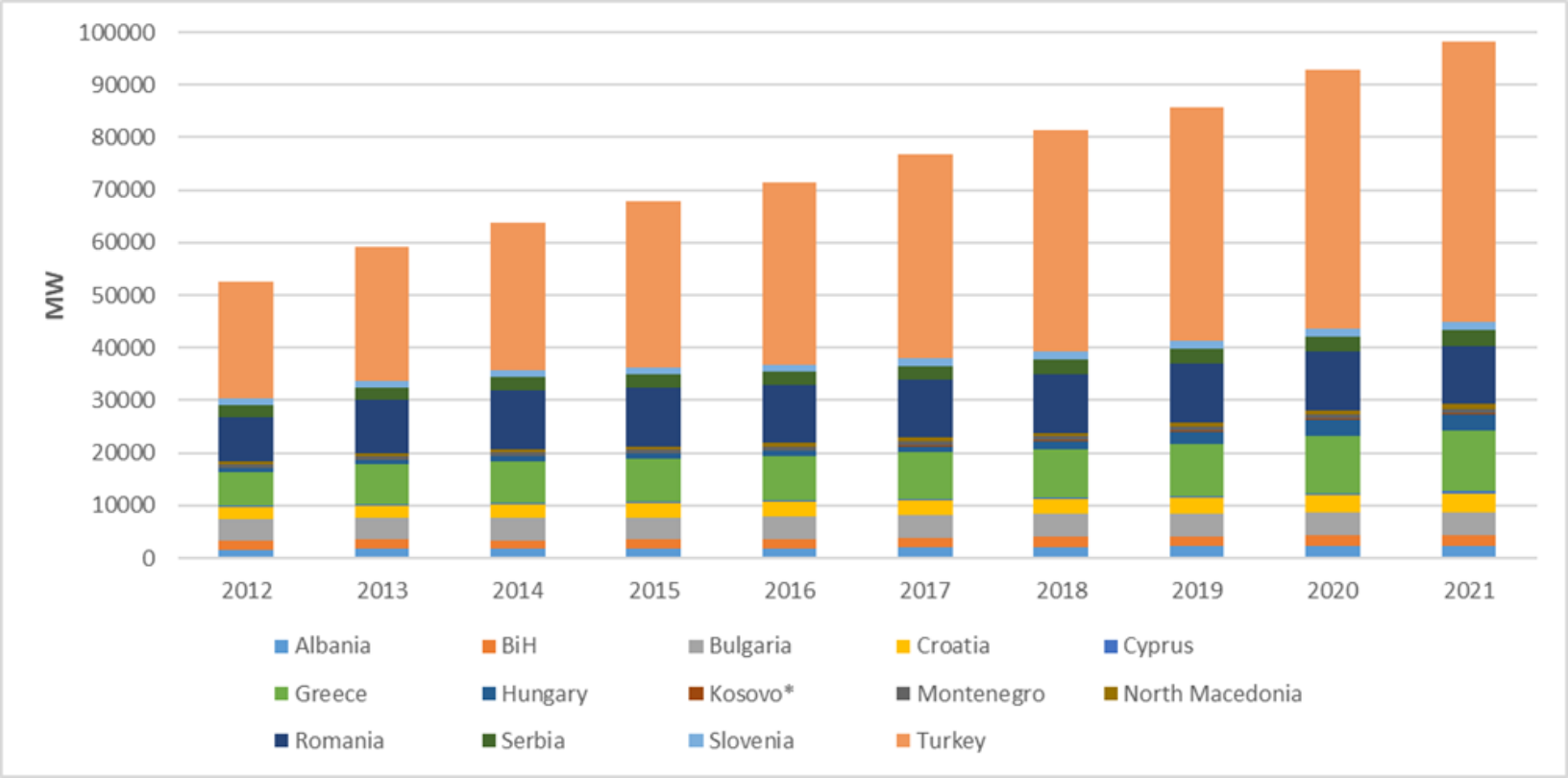


May 2023



Source: IENE

Total Installed Capacity of RES Systems by Country in SE Europe, Including Hydro, 2012-2021



Note: *Kosovo is presented separately without prejudice to positions on status and in line with the United Nations Security Council Resolution 1244 (1999)

Sources: IRENA, IENE

Solar photovoltaics is the fastest growing RES technology in SE Europe

Wind farms provide the bulk of RES generated electricity in SE Europe

SEE Key Energy Issues – Decarbonisation (I)

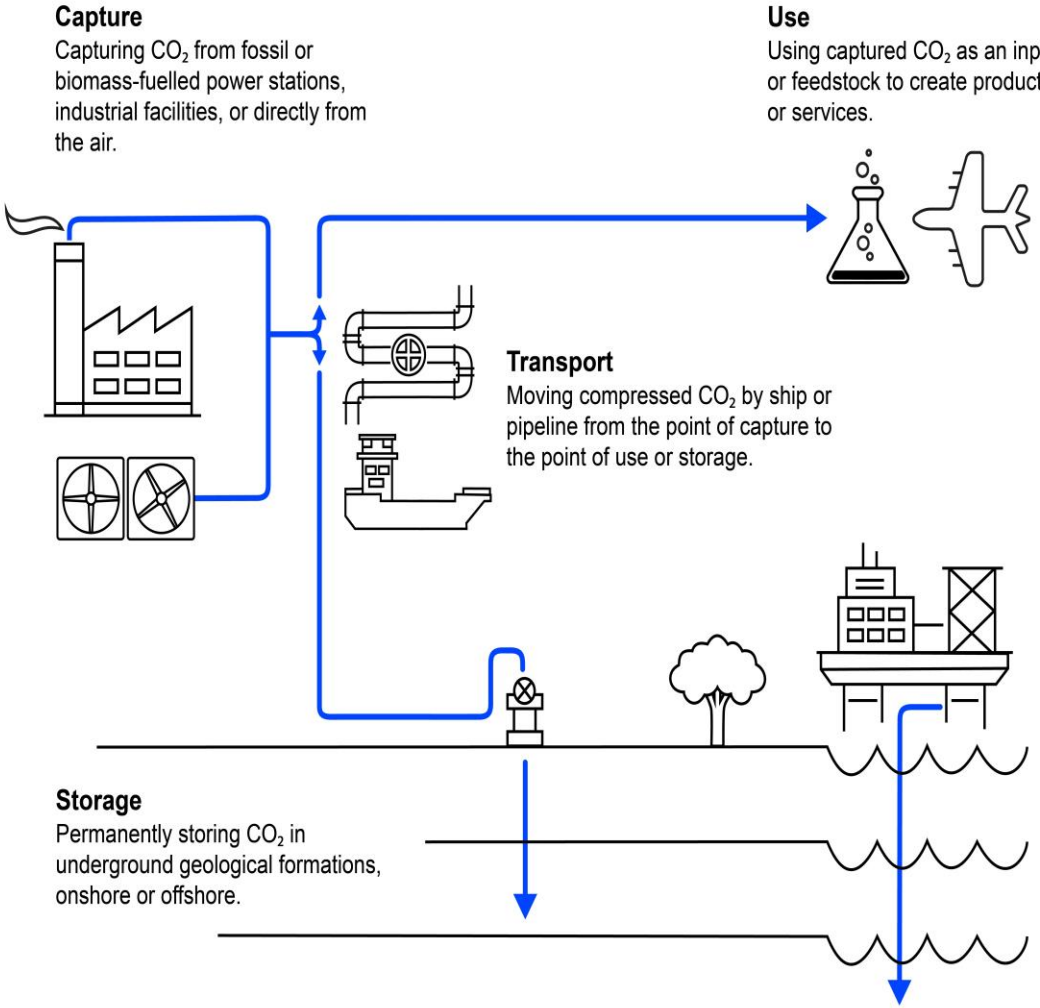
Challenges and Trends Towards SE Europe's Decarbonisation:

- The **coal predicament** of SE Europe – the region's great dependence on coal-fired power generation vs GHG emission reduction targets
  - According to IENE estimates, the **share of solid fuels to power generation** is anticipated to **increase steadily** in several countries of the region (most notably in Serbia, Kosovo, Croatia, Bosnia and Herzegovina, Montenegro and Turkey) over the next 10-15 years, as they will struggle to meet increased demand.
  - **North Macedonia and Serbia are the second most coal dependent countries after Kosovo at regional level**, while proposed lignite-based/coal-fired power plants in Bosnia and Herzegovina and Serbia would not be in line with EU climate targets, and would downgrade the solar PV, wind, hydropower, and biomass opportunities in the region.
  - **Effective climate change policies in SE Europe have not been implemented so far**, but there is still room for change in order to avoid becoming further "locked in" to the use of fossil fuels.
  - In SE Europe, **economic development**, largely based on the utilization of indigenous lignite/coal resources, **will have to be reconciled with COP 26 commitments**. Therefore, the planning of clean-cut and compatible long-term energy and economic strategies becomes a real challenge.
    - A lot more analytical and assessment work (e.g. examine CCS/CCU options) needs to be undertaken before introducing realistic policies for decarbonisation.

SEE Key Energy Issues – Decarbonisation (II)

- Decarbonisation in the region can be pursued in two parallel streams:
  - through **policy**, which incorporates the aforementioned energy mix issue and economic assessment through which the rate of decarbonization is determined.
    - The main question arising therefore is **how the rate of decarbonization can be related to economic development and what the investment implications are** and
  - through **technology**, whose degree of deployment depends on the policies to be implemented and could contribute significantly towards decarbonisation through, for instance, the use of CCS/CCU or dual-fuel power plants.
- There is no agreed regional roadmap towards decarbonisation, while cooperation between the countries in the region focuses on energy security.
- There is an urgent need to introduce latest technologies in order to improve decarbonisation efforts, energy efficiency and upgrade operation of existing networks (e.g. CCUS, solar thermal systems, power electronics, energy storage)

The CCUS Technology



Source: IEA

SEE Key Energy Issues - Energy Security (I)

- **Energy security is a complex issue** and as such cannot be considered in isolation.
  - SE Europe, because of its geography, its proximity to high-risk conflict zones (i.e. Syria, Iraq, Ukraine), refugee flow from the Middle East and North Africa and the location of some of its countries (i.e. Turkey, Greece, Romania) at vital energy supply entry points, faces **higher energy security threats** than the rest of Europe.
- There is a need to strengthen available mechanisms
  - The **strengthening of Emergency and Solidarity Mechanisms** and the **maintenance of adequate oil, coal and gas stocks**, constitute a short- to medium-term relief solution.
  - Build up of greater gas storage capacity, both UGS and FSRUs
  - The achievement of a **balanced energy mix** provides the best long-term option in enhancing energy security both at country and regional level.
- Security of **supply/demand** and **differentiation of supply sources**
  - In the case of gas, it is becoming more important and pressing compared to other fuel sources, such as electricity, oil, coal and possibly uranium.
  - Gas is a primary area of concern largely because of its rather inflexible transmission method, mainly by means of pipelines.

SEE Key Energy Issues - Energy Security (II)

- Security of **transportation**, shipment of **oil and gas**
  - Gas deliveries were twice disrupted (i.e. 2006 and 2009) with the shipment of Russian gas, through Ukraine, to Europe but also from Turkey and Greece (i.e. 2011 and 2016).
- **Smooth supply of electricity** and urgent need to connect various island groups to the mainland grid
  - Mitigation of possible power supply failures and shortfalls and minimization of environmental impact through the retirement of fuel oil or diesel powered electricity generators on several islands.
- **Effective protection of energy infrastructure**
  - Mitigation of terrorist threats and advanced level of safety against of physical hazards (e.g. hurricanes, floods, earthquakes) and cyber threats (*IENE organised an Ad hoc meeting for energy security on March 15, 2017*).
- The various vulnerable key energy infrastructure locations in SE Europe constitute **potential energy security hot spots** and as such should be properly identified, while also crisis management plans must be prepared in order to meet any emergencies (e.g. physical hazards, large-scale industrial accidents or terrorist actions).

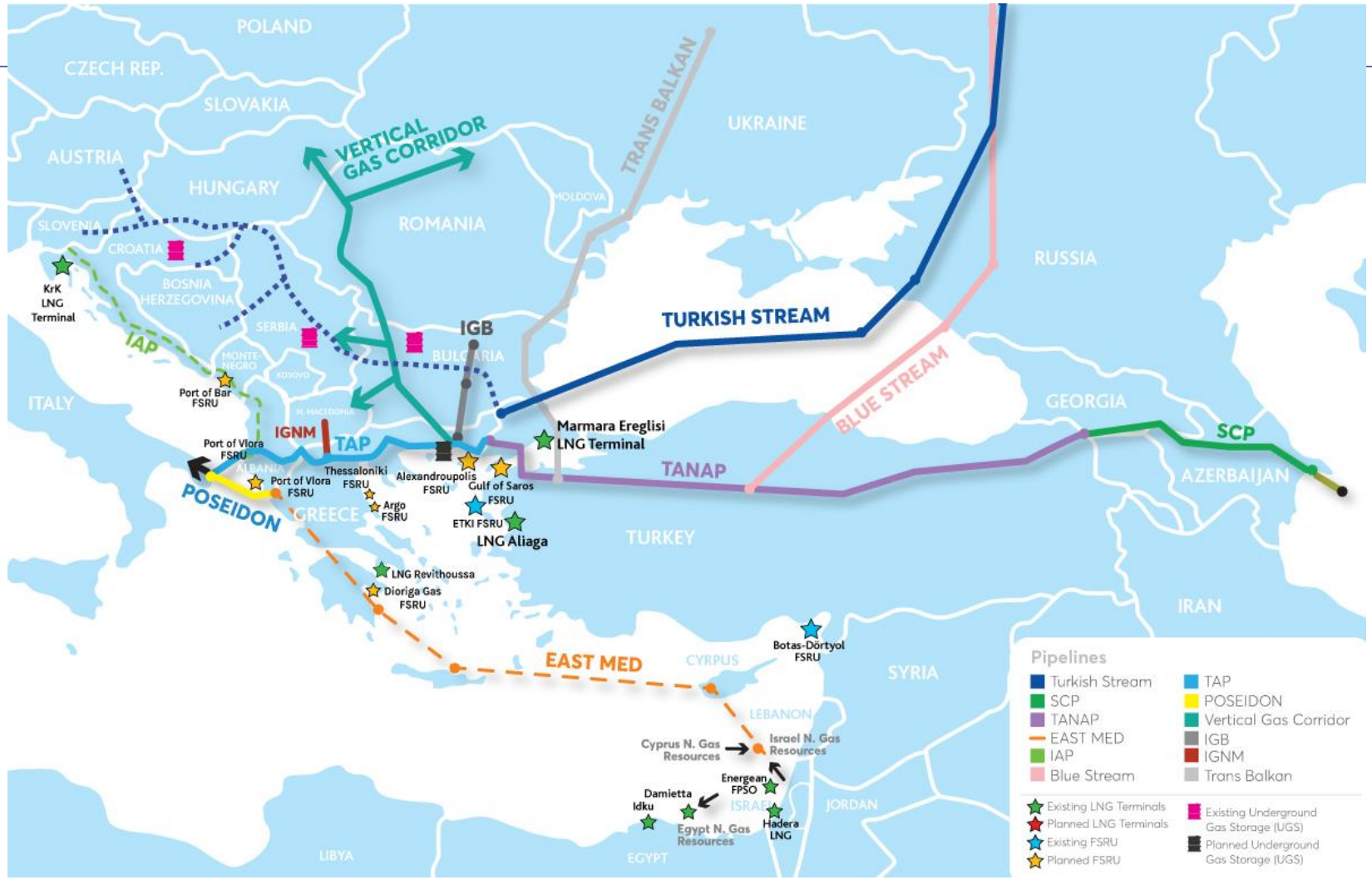
SEE Key Energy Issues - Energy Security (III) - Towards a Redefinition of the South Corridor

- Meanwhile, several gas exploration projects are in the development stage in the **East Mediterranean** region, with important gas discoveries such as the Leviathan and Tamar fields in Israel, Zohr in Egypt and Aphrodite (which borders with Zohr), Zeus and Cronos in Cyprus's EEZ.

- A number of alternative plans are under discussion for channeling this gas to Greece and Turkey, for local consumption, but also to Europe proper for transit to the continent's main gas markets. These plans include gas pipelines, liquefaction plants for LNG export and FSRU terminals to be tied up into the TANAP-TAP system.

- Another option apart of TAP – TANAP system is the **East Med Pipeline** which again, due to the significant technical challenges, could also accommodate limited quantities of gas in the regions of 8.0 to 12.0 BCM's per year. Meanwhile, EC is actively exploring the possibility of massively increasing the member countries' LNG capabilities as part of Energy Union priorities, despite the recent negative stance from the US.

An Expanded South Gas Corridor

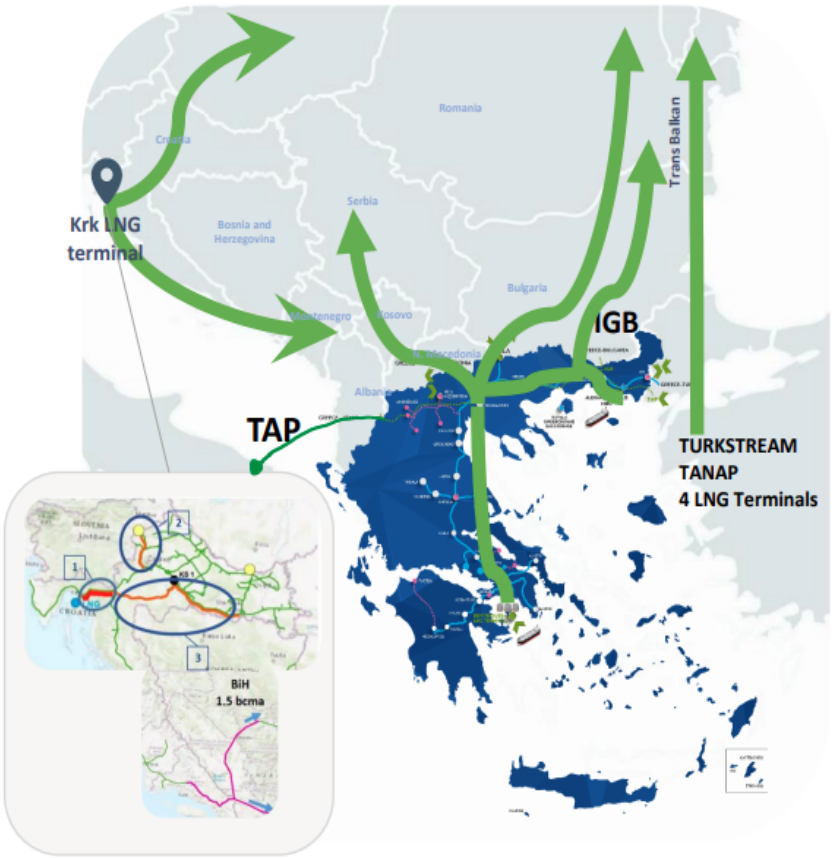


Note: The TANAP, TAP, IGB and Turk Stream have been completed, while BRUA is still under construction. The IAP, the IGI Poseidon in connection with East Med pipeline and the Vertical Corridor and the IGNM are still in the study phase. Blue Stream and Trans Balkan are existing pipelines.

Source: IENE study "SE Europe Energy Outlook 2021/2022", Athens, 2022

LNG emerged as the top strategic fuel for Europe during the current crisis

Greece Has Emerged as an Important Source of LNG For Europe but is Facing Stiff Competition in the Potential Supply Routes For Gas in SE Europe



CROATIA

- ✓ Closer to the main lines that bring gas to Central Europe & Ukraine
- ✓ Has a newly built FSRU - **Krk LNG**
- ✓ The Croatian **government is financially supporting the de-bottlenecking of the national network** to accommodate transit flows
- — Challenges related to expansion of transit capacity

Greece

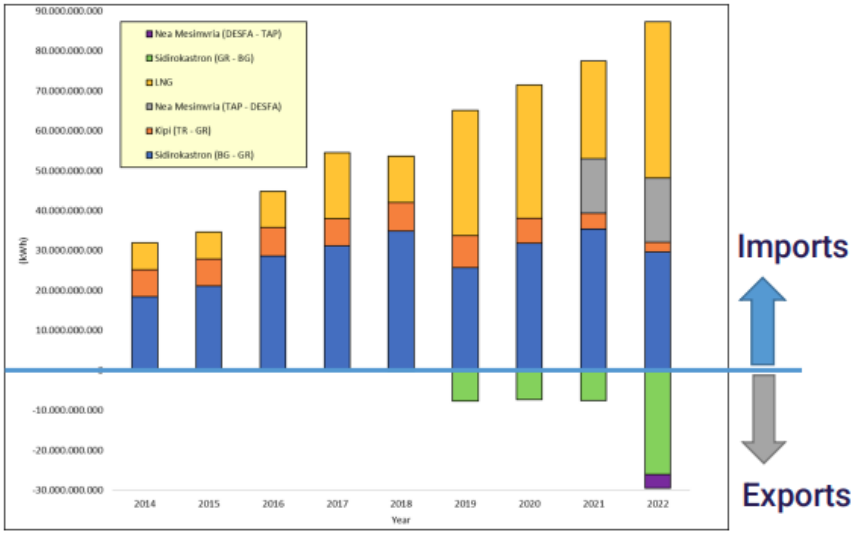
- ✓ Very well placed, with one large LNG import Terminal
- ✓ One FSRU under construction and a 2nd in planning phase
- ✓ Two connections to Bulgaria which grant access to Trans Balkan pipeline
- — Congested national gas network & large **investments needed for the upgrade for LNG Transit**
- — No "free money" any longer for natural gas but only for H2

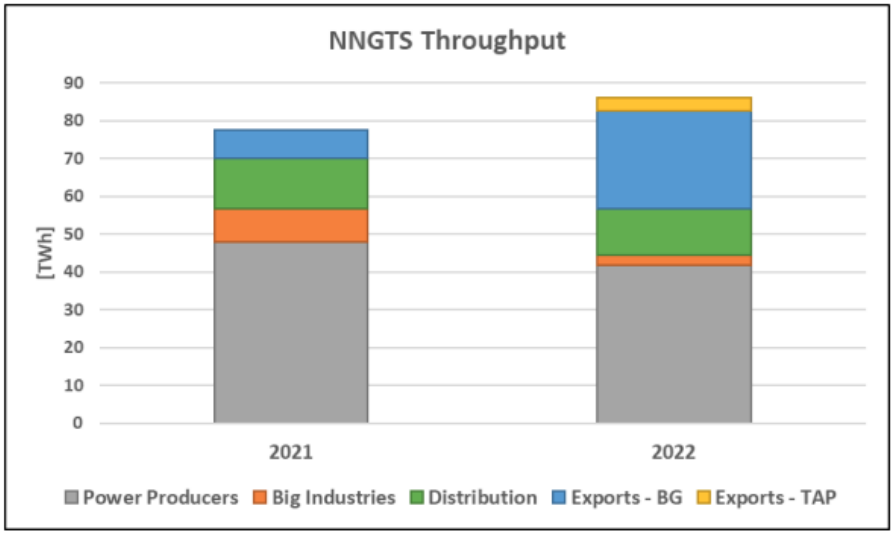
Turkey

- ✓ Most diversified gas supply portfolio in the region & Important transit country, largest connection to the Transbalkan pipeline
- ✓ 4 LNG Terminals in operation and a 5th in planning phase
- ✓ Large consumer with modern Energy Exchange in operation
- ✓ EU is hoping for gas from Turkey;
- — Large domestic needs, especially in the European part of the country
- — National grid needs reinforcement for exports to EU
- — Non EU member with protectionism for national champions – no TPA
- — Ambiguous relations with Russia on gas issues

Source: DESFA

The Gas Landscape is Changing with Greece Becoming a Net Exporting Country

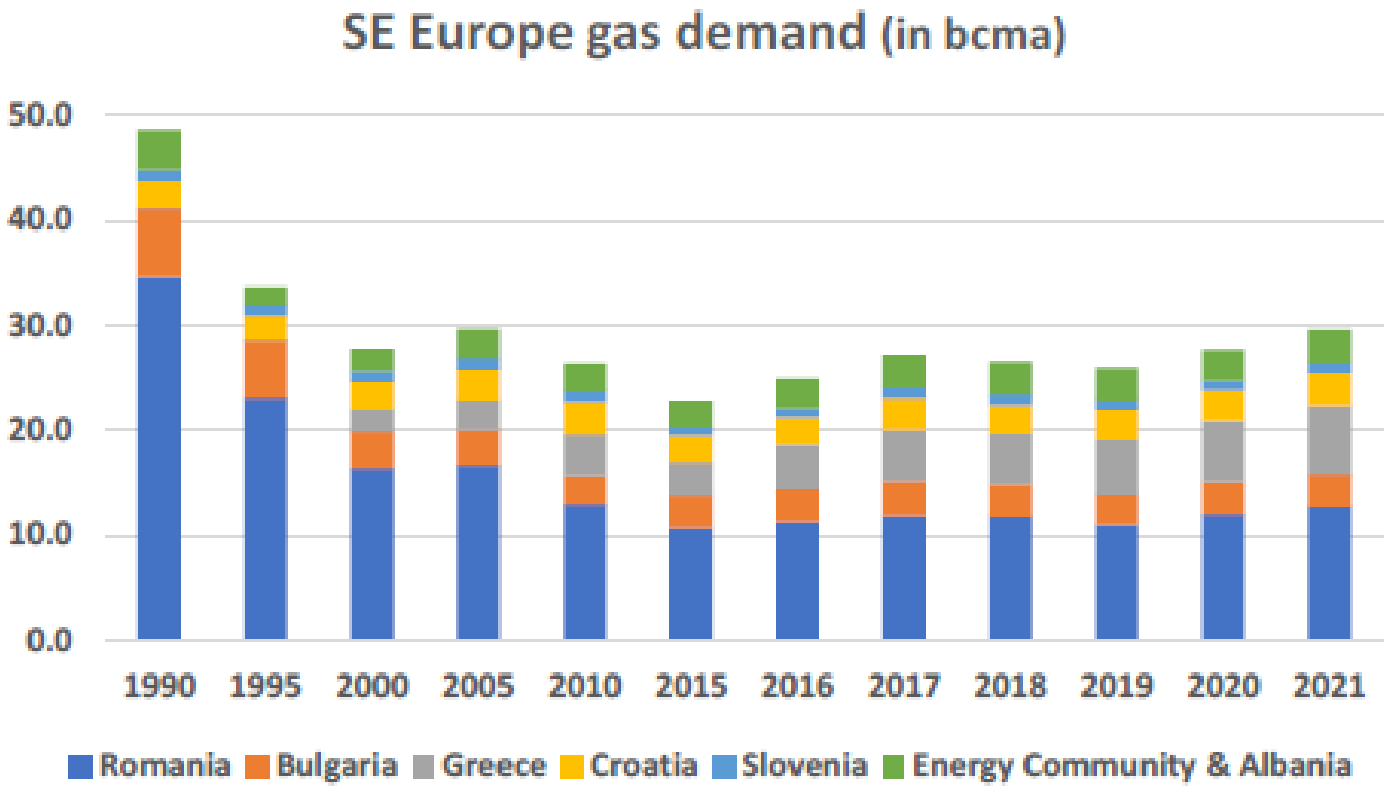




- ✓ Annual throughput has been steadily increasing during the last nine years (from 32 TWh in 2014 to 87 TWh 2022)
- ✓ Exports increased by appr. 300% in 2022 compared to the average of the preceding three years period
- ✓ Domestic demand was decreased by 19% in 2022, compared to the previous year
- ✓ LNG imports hit a max in 2022 (more than 39 TWh)

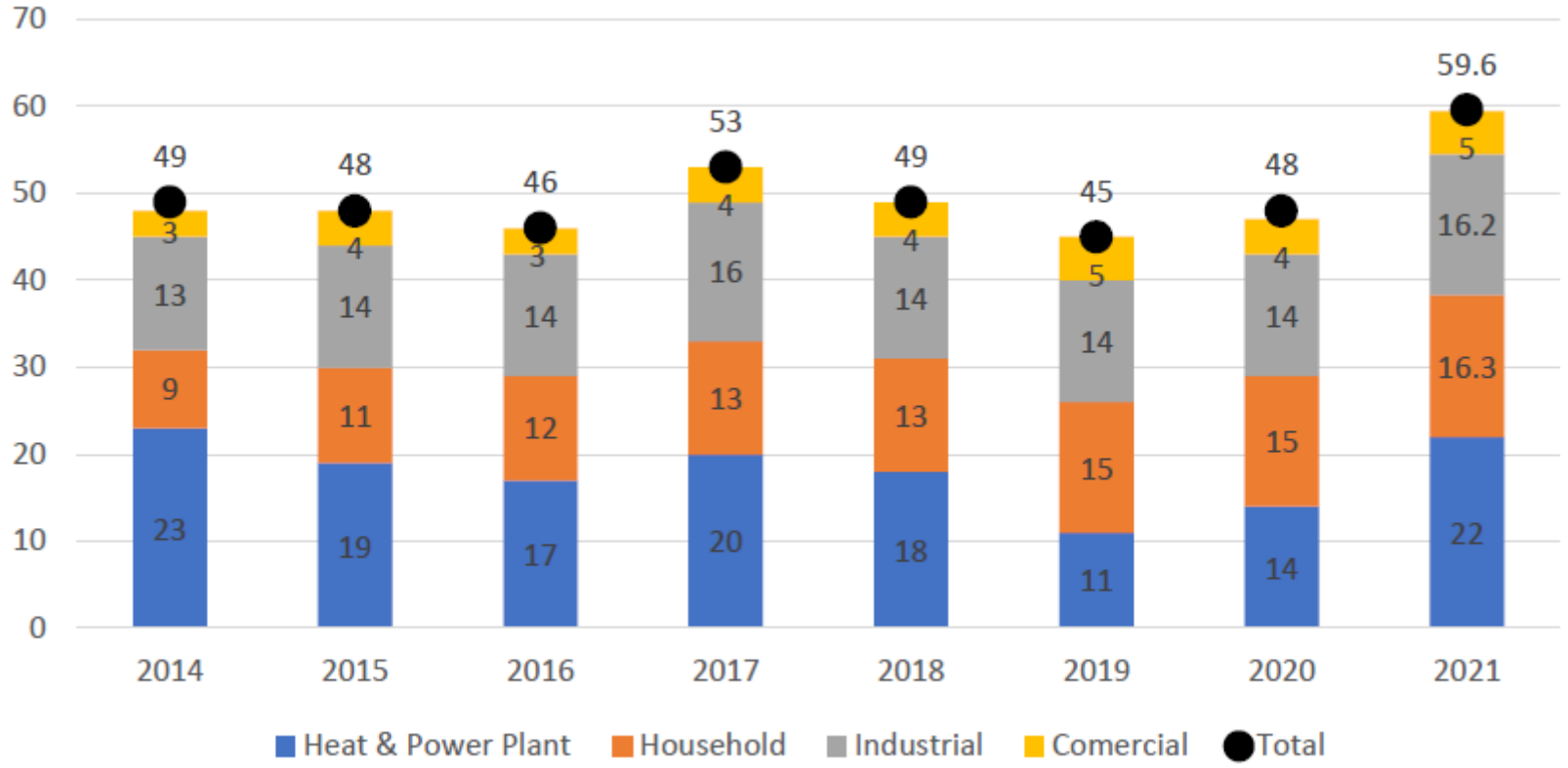
Source: DESFA

SE Europe's Gas Demand, **Excluding Turkey**, 1990-2021



Source: OIES

Turkish Gas Demand by Sector and in Total (Bcm Per Year)



Sources: EPDK, OIES

The Nuclear Power Option for SE Europe

- Today, nuclear plants operate in 5 SEE countries (Bulgaria, Romania, Slovenia/Croatia, Hungary) with Turkey a newcomer from May 2023. Between them, they cover 8% of electricity consumption, all of it base load needs. In the context of much needed decarbonisation in SEE, there is huge scope for further power generation from nuclear power.
- On February 2, 2022, the European Commission presented a **Taxonomy Complementary Climate Delegated Act**, which may reignite nuclear projects in SE Europe. There appears to be **limited interest for new nuclear power plants in the region**. Only Romania and Turkey have specific plans.

Source: IENE study "SE Europe Energy Outlook 2021/2022", Athens, 2022

Operational Nuclear Power Plants in SE Europe

Country	Name	Type of reactor	Capacity (MWe)	Operation since
Bulgaria	Kozloduy 5	PWR	1003	1987
	Kozloduy 6	PWR	1003	1991
Hungary	Paks 1	PWR	479	1982
	Paks 2	PWR	477	1984
	Paks 3	PWR	473	1986
	Paks 4	PWR	473	1987
Romania	Cernavoda 1	PHWR	650	1996
	Cernavoda 2	PHWR	650	2007
Slovenia/Croatia	Krsko	PWR	688	1981

Note: Cernavodă NPP in Romania has the only PHWR CANDU reactors operating in Europe. Total capacity stands for 5,896 MWe.

Source: World Nuclear Association

Nuclear Power Plants (Under Construction, Planned and Proposed) in Turkey

Country	Name	Type of reactor	Capacity (MWe)	Start construction	Planned operation
Turkey	Akkuyu 1	VVER	1200	April 2018	In operation
	Akkuyu 2	VVER	1200	April 2020	2024
	Akkuyu 3	VVER	1200	March 2021	2025
	Akkuyu 4	VVER	1200	(2022)	2026
	Sinop 1	ATMEA1	1150	uncertain	-
	Sinop 2	ATMEA1	1150	uncertain	-
	Sinop 3	ATMEA1	1150	uncertain	-
	Sinop 4	ATMEA1	1150	uncertain	-
	Igneada 1-4	AP1000x2, CAP1400x2	2x1250 2x1400	unknown	-

Note: Total capacity stands for 14,700 MWe.

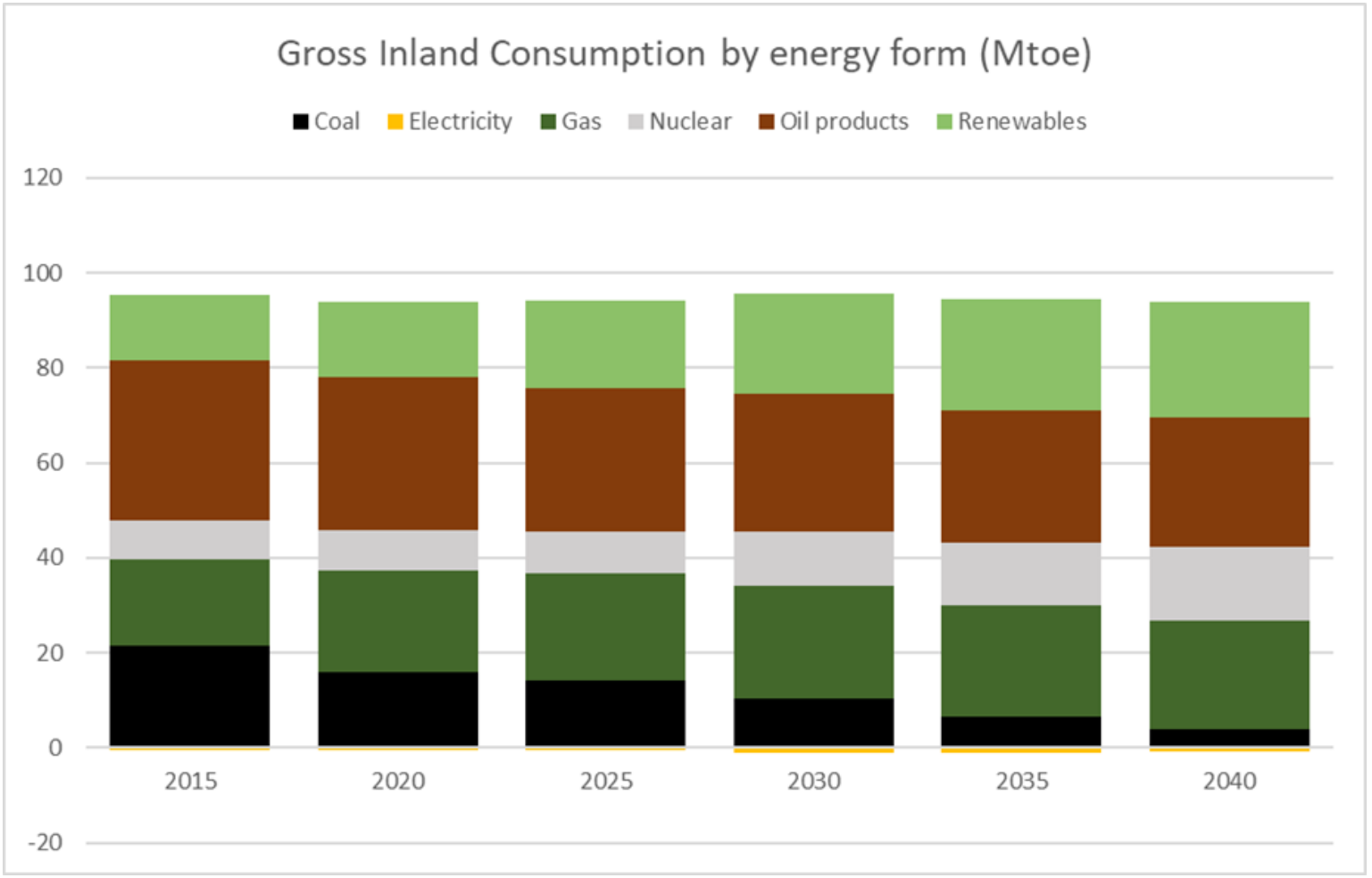
Source: World Nuclear Association

The Akkuyu Nuclear Power Plant

Energy Demand and Supply Scenarios in SEE

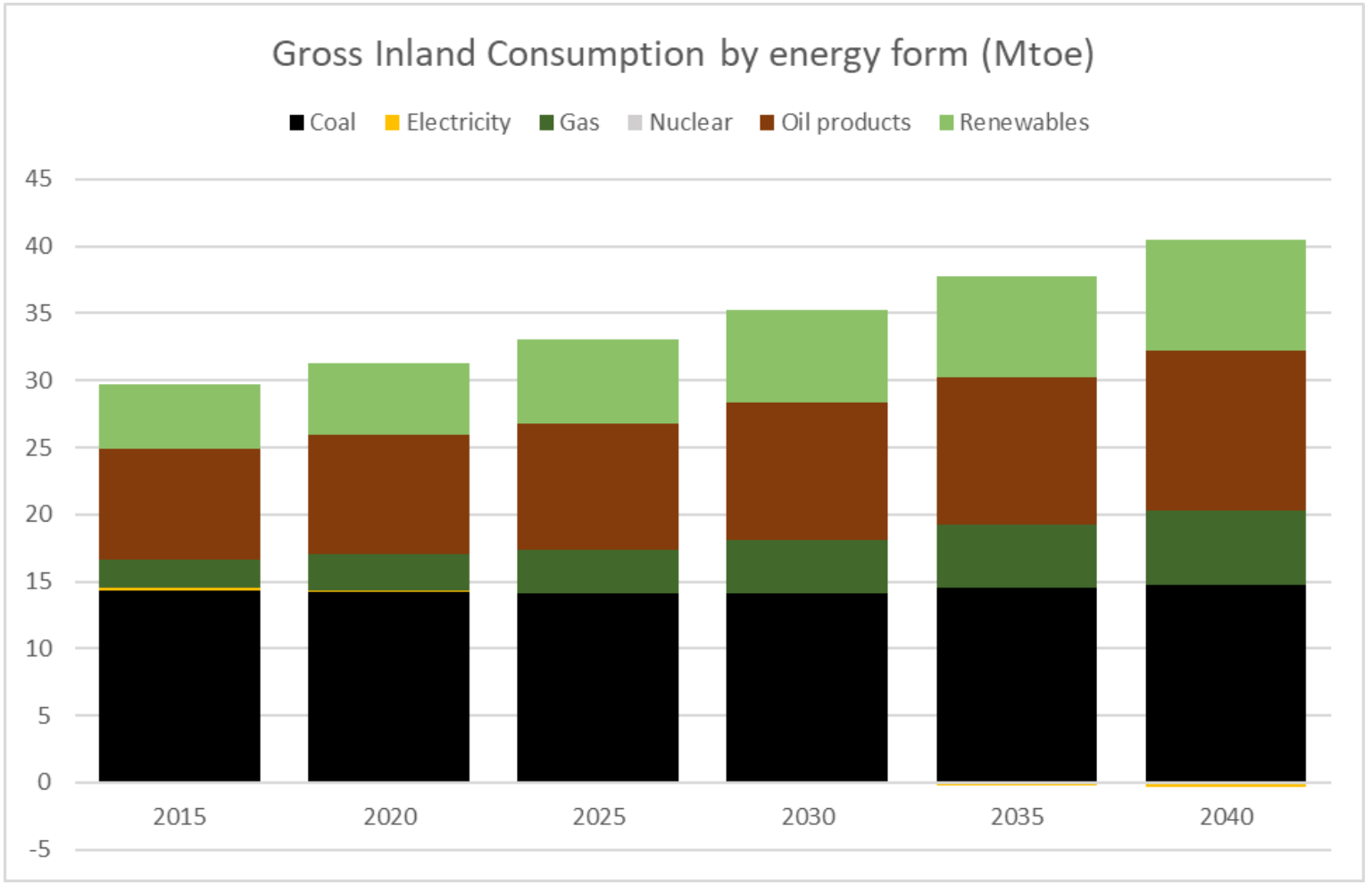
- The projections for the development of the energy systems of the SEE countries under **a "Baseline" scenario** approach was considered appropriate in order to present the possible future pathways paved by current policies.
- The **most recently available studies** and the **official country submissions of strategic documents** (such as the Integrated National Energy and Climate Plans) were used in order to collect and analyse these projections.
- The purpose is to present the evolution of the national energy systems corresponding to a **"where we are heading" storyline**, providing a simple but comprehensive picture of the energy and GHG emissions dynamics under the "current policy" efforts until 2040.
- **Results are presented per Group of Countries - EU Member States, West Balkans and Turkey**
- Looking at the projection of the gross inland consumption in the **EU member states of the SEE region** (Bulgaria, Croatia, Cyprus, Greece, Romania, Slovenia), the overall tendency shows a stabilisation and even a small reduction in the time horizon to 2040.
- The projection of Gross Inland Consumption in the **six Western Balkan countries** (WB6: Albania, Bosnia and Herzegovina, Kosovo, Montenegro, North Macedonia and Serbia) presents a rather different story from that of the EU member states in the region.
- In **Turkey**, gross inland consumption is projected to increase by more than 50% between 2020 and 2040. The role of renewable energy is seen to increase notably, reaching 28% of the GIC in 2040, the amount of coal remains at the level of 50 Mtoe with its relative contribution being reduced to 23% in 2040 and the contribution of natural gas is decreased to 17% of the GIC. Nuclear energy appears for the first time in the GIC of Turkey after 2025 with the operation of the Akkuyu nuclear power plant and is increasing until 2050, following the nuclear expansion program of the country.

EU Member States in SEE: Gross Inland Consumption by Energy Form (2015-2040)



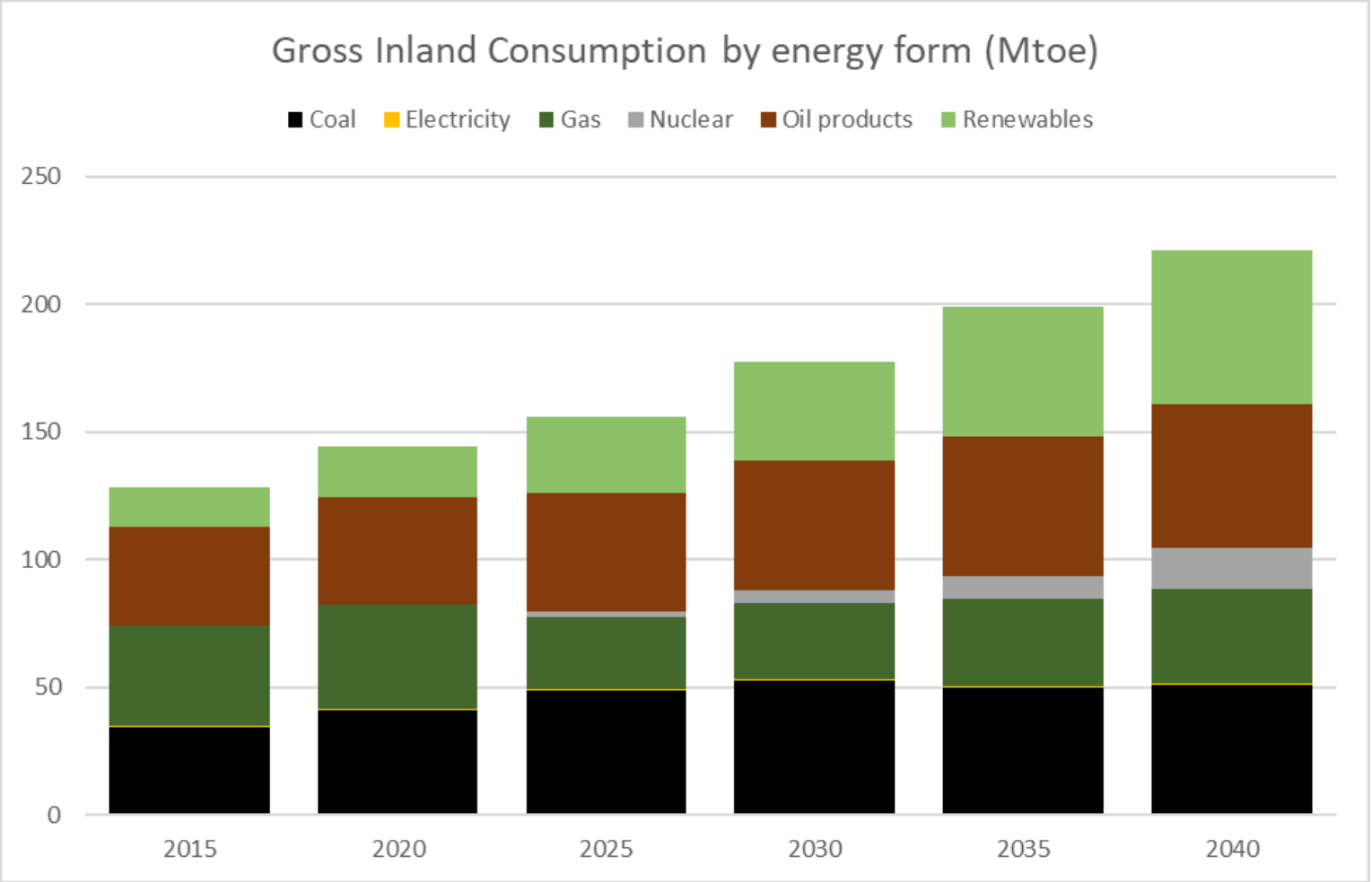
Source: IENE study “South East Europe Energy Outlook 2021/2022”, Athens, 2022

Western Balkans: Gross Inland Consumption by Energy Form (2015-2040)



Source: IENE study “South East Europe Energy Outlook 2021/2022”, Athens, 2022

Turkey: Gross Inland Consumption by Energy Form (2015-2040)



Source: IENE study “South East Europe Energy Outlook 2021/2022”, Athens, 2022

SEE Energy Investment Outlook 2021-2030

- The **investment prospects** in the energy sector of SE Europe over the next 10 years can only be described as **positive**.
- In terms of planned investments, a group of **five countries (i.e. Turkey, Bulgaria, Romania, Serbia, Greece)** appear to be moving **much faster than others** in attracting the needed investment for a variety of energy projects, while progress in the rest of the countries is moving more slowly.
- The region as a whole can be considered as presenting **attractive business opportunities in almost all branches of the energy sector**. The present analysis shows that investment in the energy sector will be spread as follows between countries and interregional projects.
- Total estimated energy related investment in the region is substantial and amounts to €483.7 billion for the 15-country group.
- Compared to investment estimates made in the 2017 edition of IENE's "SEE Energy Outlook", the current estimates for energy related investments in SEE are much higher (+€137.5 billion) for the 13 country reference group, indicating strong interest for investments in the region.

Findings of SEE Energy Investment Outlook Per Country (2021-2030)

Country	Estimated Investment (mn €) 2021 Estimate	Estimated Investment (mn €) 2017 Estimate	GDP growth 2021 (%) IMF World Economic Outlook	GDP growth annual projection to 2025 (%)
Albania	4,500	7,460	5.3	**3.5-4.5**
Bosnia and Herzegovina	9,400	8,722	2.8	**3-3.2**
Bulgaria	47,000	11,050	4.5	**3.1-4.5**
Croatia	21,000	8,525	6.3	**3.2-5.8**
Cyprus	16,200	7,350	4.8	**2.7-3.6**
Greece	44,400	23,300	6.5	**1.5-4.6**
Hungary	25,300	-	7.6	**2.6-5.1**
Israel	39,300	-	7.1	**3.2-4.1**
Kosovo	7,400	2,605	4.8	**n/a**
Montenegro	4,600	2,400	7.0	**2.9-5.6**
North Macedonia	10,400	3,400	4.0	**3.6-4.2**
Romania	50,100	20,630	7.0	**3.6-4.8**
Serbia	15,200	11,260	6.5	**4.0-4.5**
Slovenia	12,100	3,185	6.3	**2.9-4.6**
Turkey	130,000	124,935	9.0	**3.3**
TOTAL	**436,900**	**234,822**		

NB. Hungary and Israel were not included in the 2017 SEE Country Survey and hence no estimates have been prepared by IENE.

Findings of SEE Energy Investment Outlook 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		• Buildings • Industry • Electric vehicles	88,700	-
	Total anticipated investments by 2021-2030		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**

*(1) This estimate refers to Scenario A as stated in SEE Energy Outlook 2016/2017, p. 1123-1124.
(2) No investment estimates for Energy Efficiency applications were provided in the SEE Energy Outlook 2016/2017.

Discussion (I)

- **Geography**, followed by **economy**, has emerged as a key factor in SEE's energy assessment
- **Energy strategies and policies:** There is considerable divergence between stated objectives and actual progress on the ground (e.g. Decarbonisation, RES penetration, regional co-operation)
- There is **clear failure at EU policy level** in achieving national targets especially in RES, as conflict is in evidence over strict budgetary rules and allowed deficit levels
- The **coronavirus pandemic (COVID-19)** led governments to impose unprecedented containment measures on transportation and economic activity in general. Combined with a fall in global oil prices, especially during March-May 2020, this crisis is producing imbalances in the energy sector, affecting both investments and the transition to decarbonisation
- The SEE region's **energy mix** is still characterized by glacial change in terms of differentiation of the dominant fuels
- The **persisting relevance of solid fuels** is explained on account of the large amounts of indigenous coal and lignite deposits and are seen as partly preventing a determined move towards decarbonisation
- The SEE region is characterized by **high oil and gas import dependence**
- The outlook for the SE European **upstream oil and gas industry** has rarely looked so uncertain
- **Peripheral countries** are playing an increasingly more influential role in the channeling of energy flows into the SEE region
- **Natural gas is becoming increasingly important** to the energy mix of the various SEE countries both for power generation and commercial/domestic use

Discussion (II)

- **Market liberalization** in the electricity sector has made huge strides over the last five years with unbundling having taken place and competition in the retail area now evident after many years of protectionism. Less impressive is progress in the natural gas sector where competition, is largely limited to the industrial sector with retail lagging seriously behind
- **Nuclear power**, although it contributes only 4.1% to total gross inland consumption and 16% to the electricity mix in SEE (excluding Turkey), remains a viable option since it covers important base load requirements in certain key countries (Romania, Bulgaria, Croatia, Slovenia, Hungary) and is fully compatible and supportive of EU's (revised) decarbonisation policies
- **Energy efficiency** in SE Europe until very recently was not given enough priority or attention although its role has been recognized in all EU Member States. Further efforts are required to introduce Energy efficiency as an integral part of national energy planning
- The SEE countries, especially Western Blkans, have particularly high levels of **energy poverty** due to low incomes, high energy needs stemming from energy-inefficient housing, and limited access to diversified energy supply
- In terms of **security of energy supply**, the SEE region as a whole appears more vulnerable than the rest of Europe (mainly Western European countries) and hence priority should be given to lessen the region's energy import dependence
- Alongside power grid upgrading, a diverse mix of **flexible generation technologies** can facilitate the integration of variable RES – especially wind and solar PV.
- In SE Europe, the **Electric Vehicle deployment** is still at a very early stage, even though it shows significant annual growth.

Discussion (III)

- Looking at **forecasted of gross inland energy consumption in the EU member states of the SEE region**, the overall tendency shows a stabilisation and even a small reduction in the time horizon to 2040
- In contrast, the **projection of gross inland energy consumption in the six Western Balkan countries** presents a rather different story from that of the EU member states in the region. Following the expected growth of GDP, gross inland energy consumption is projected to increase by almost 40% between 2015 and 2040, with the amount of coal being held almost constant, close to 15 Mtoe
- **Gross inland energy consumption in Turkey** is slated to increase by more than 50% between 2020 and 2040, supported by strong demographics
- **Investment prospects** for energy related basic infrastructure and energy projects across the board look positive over the next decade
  - Corresponding investments for the original 13-country group (as they appear in the 2017 Outlook) are slated at €372.3 billion, which is 58.5% higher compared to the 2017 estimates.
  - **This is a vast improvement compared to 5 years ago and clearly shows the much higher interest and appetite for energy investments in SE Europe.**
  - Total anticipated energy investments for the 15-country group (including Israel and Hungary) amount to approx. €484 billion

INSTITUTE OF ENERGY
FOR SOUTH-EAST EUROPE

Thank you
for your attention!

www.iene.eu
cstambolis@iene.gr