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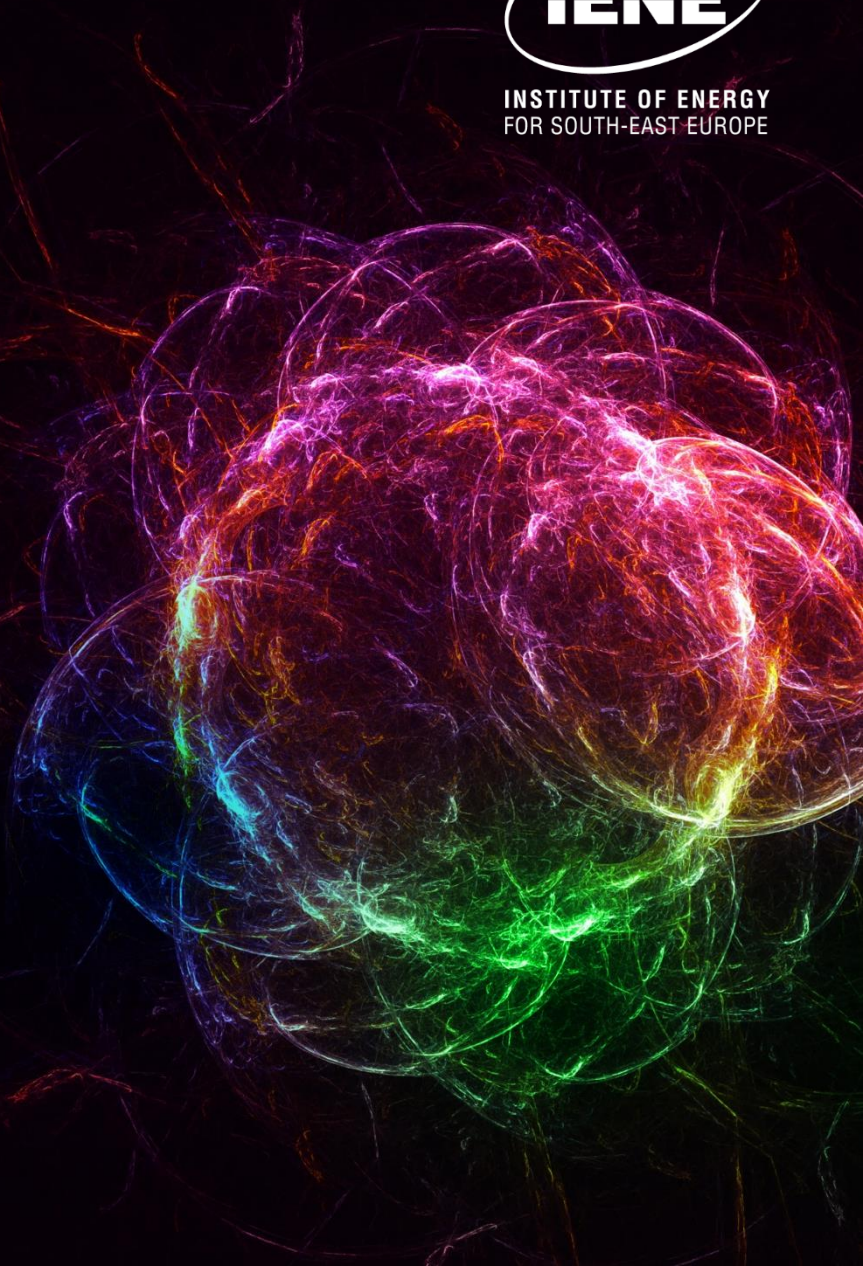
South East Europe Energy Outlook 2025/2026



Presentation at the
Diplomatic Briefing Programme
Embassy of the Republic of Cyprus, Athens

June 5, 2026

By **Costis Stambolis**
Chairman and Executive Director of IENE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South East Europe
Energy Outlook
2016/7
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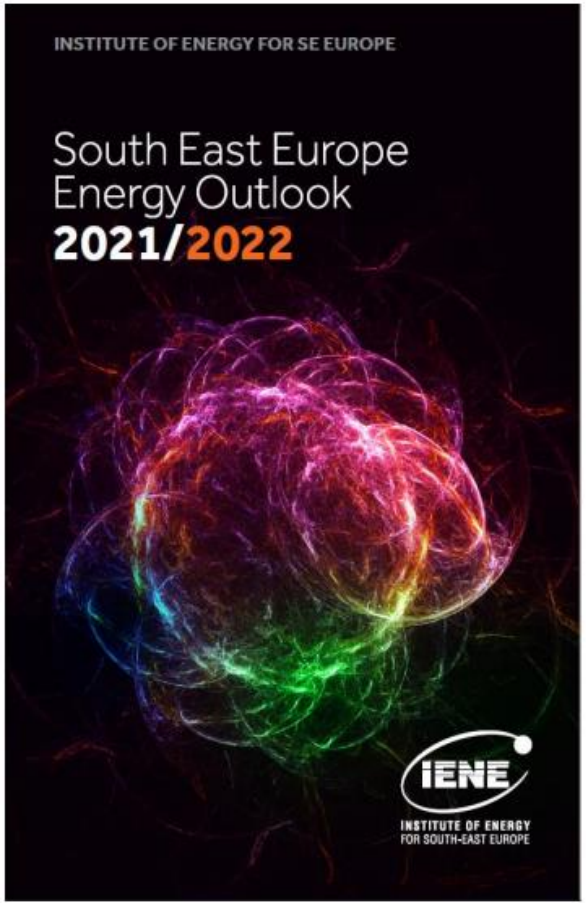
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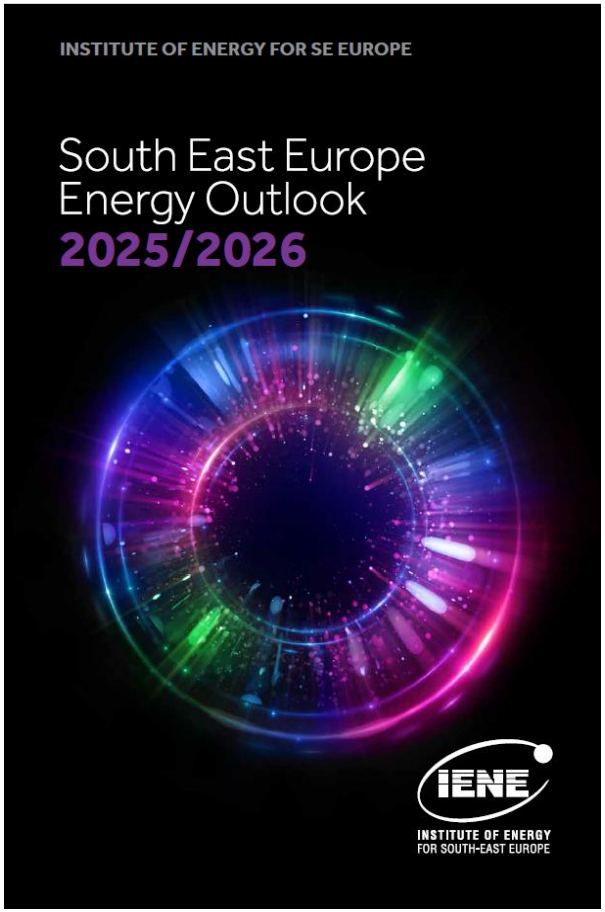
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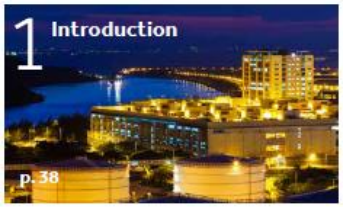
Contents of SEEEO 2025/2026 Study



Contributors of SEEEO 2025/2026

Raison d' Être

- Why a regional approach?

Because SE Europe, on the strength of its history, cultural background and current urban and industrial setting, constitutes a region both geographically and geopolitically and it has a strong impact on the rest of Europe and the East Med (see Energy Security).

- The need to **understand** the geopolitical and geographical sphere within which IENE operates, but also to **define** and **evaluate** in an objective manner the major policy challenges of the energy sector of the region.
- To **study, analyse** and **understand** the region's energy market structure and associated energy flows.
- To **identify** the important investment and business opportunities across the SE European area and assess the region's energy related investment potential within the given business climate.
- Energy Atlas of the region.
- An in-depth study of the energy prospects and perspectives of a particular geographic region, such as SE Europe, has an impressive cumulative effect, as the **sum often exceeds the value of its constituent parts**. Very much along the lines of Aristotle's logic when he proclaimed the *"The whole is greater than the parts"*.

The SE European Region Defined

CORE COUNTRIES		PERIPHERAL COUNTRIES	
Albania	Hungary	Azerbaijan	Syria
Bosnia and Herzegovina	Montenegro	Ukraine	Lebanon
Bulgaria	Romania	Austria	Jordan
Croatia	Serbia	Italy	Egypt
Cyprus	Slovenia	Slovakia	
North Macedonia	Türkiye		
Greece	Israel		
Kosovo	Moldova		

Study Scope and Focus

Study Scope

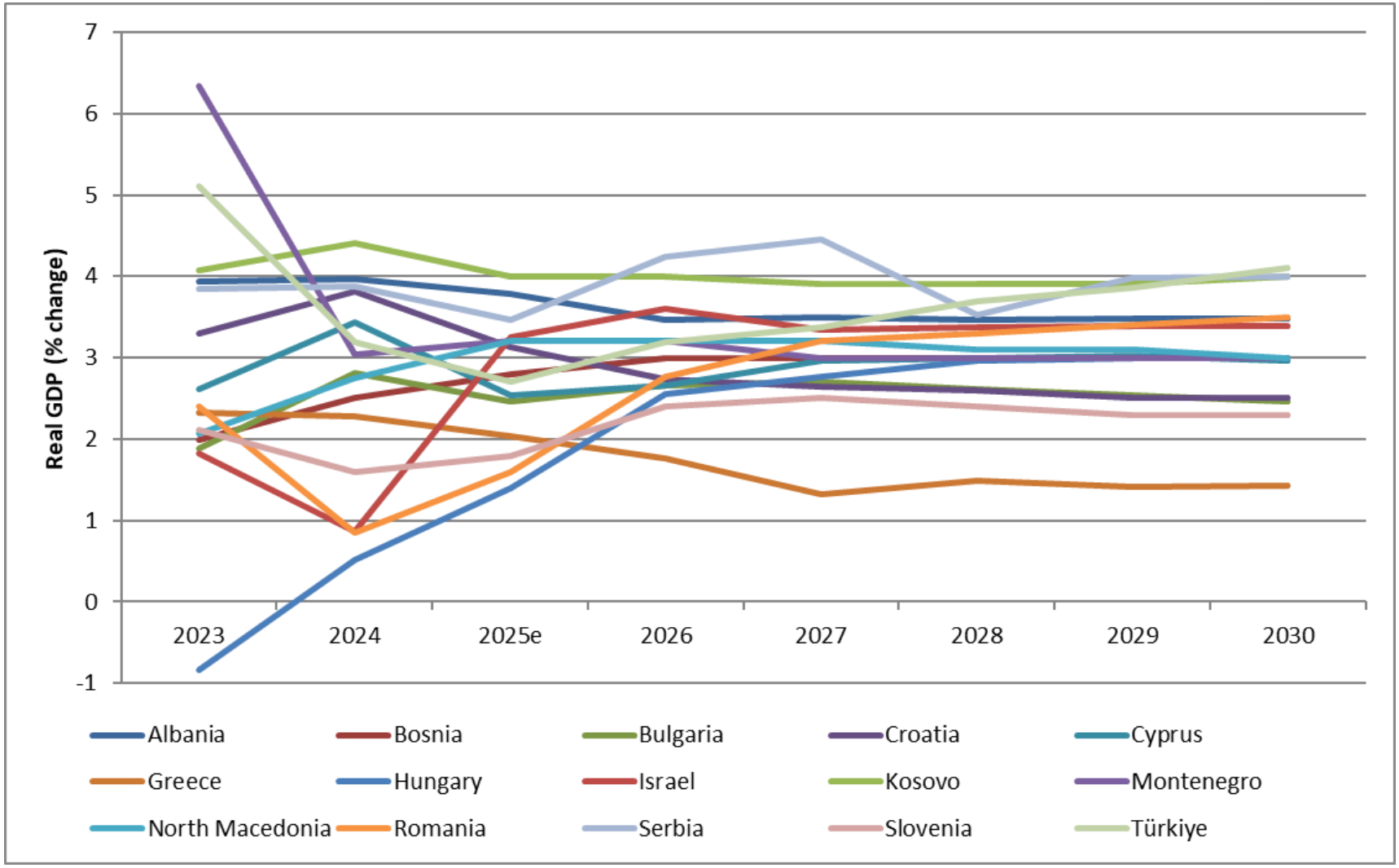
(a) To present a **critical assessment** of the current status of the energy market in SE Europe

(b) To bring together the latest available knowledge on energy developments in the region and also **provide comprehensive data** on energy demand/ consumption, the major energy projects, pursued energy policies as well as trends, estimates and projections

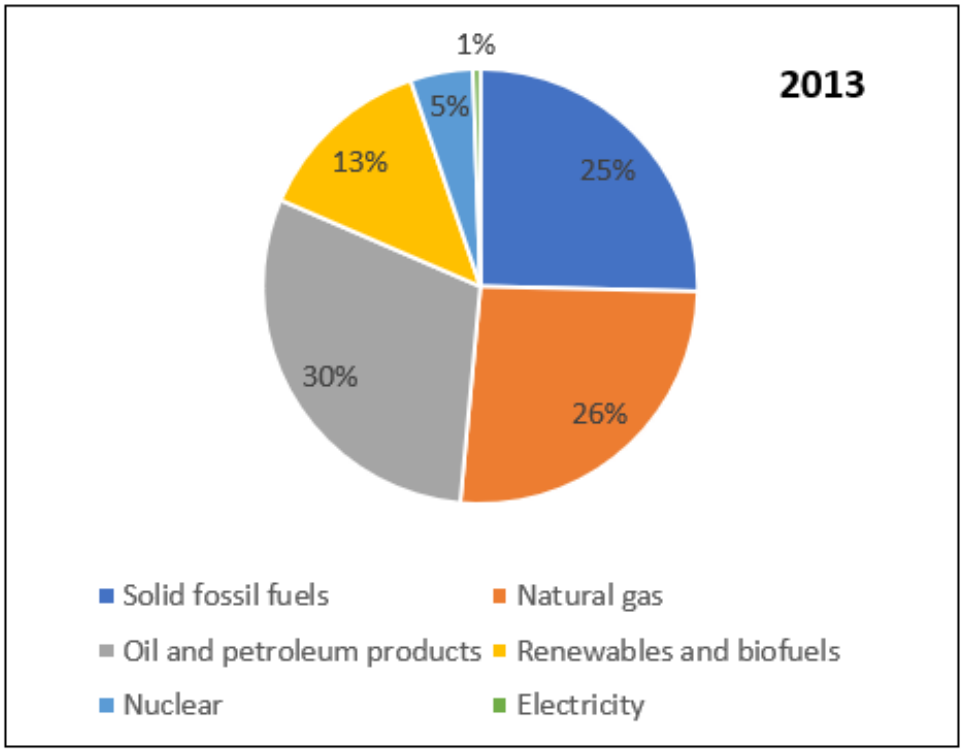
(c) Taking into consideration the economic and political background of SE Europe, the study **analyses the dynamics** of regional integration process from an **energy perspective**

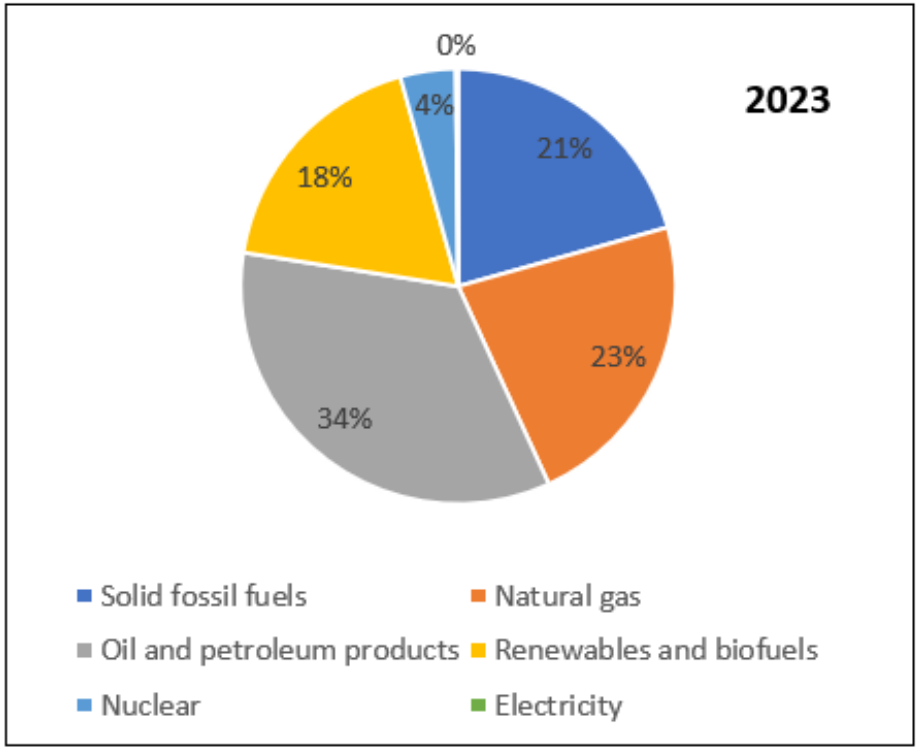
(d) To provide an outlook for energy supply/demand, consumption and energy mix in the region

The Economies of SE Europe – Real GDP



SE Europe's Energy Mix, **Including Türkiye**, 2013 and 2023





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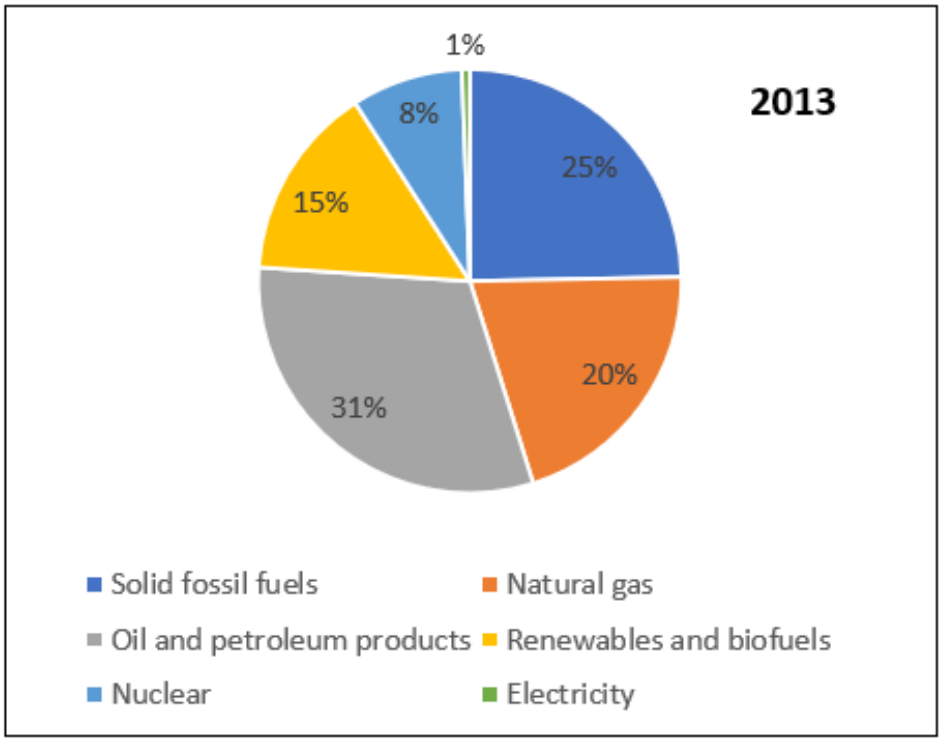
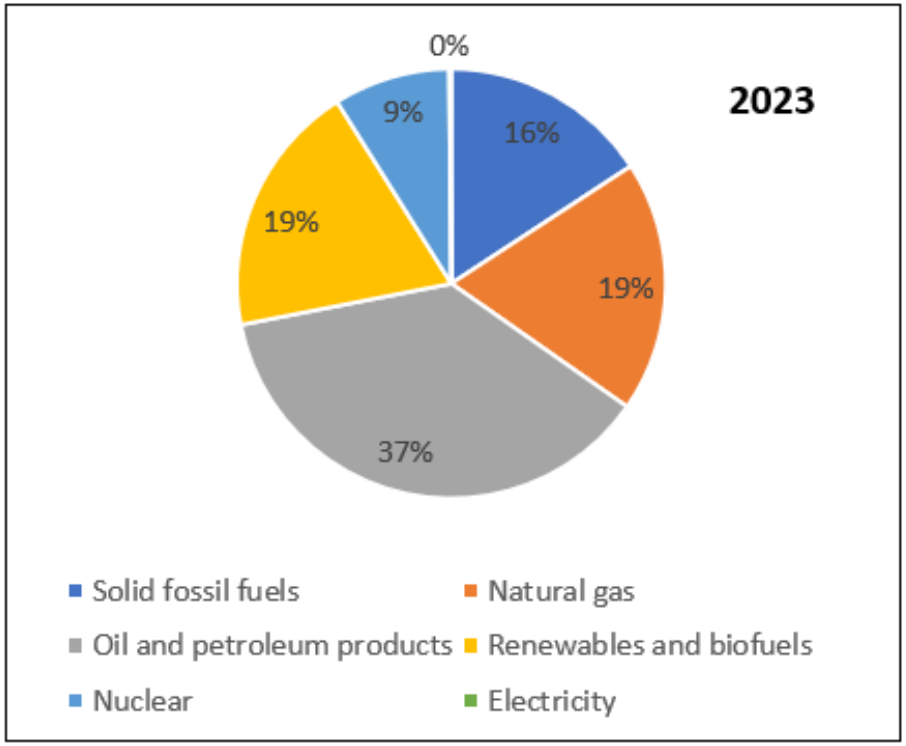
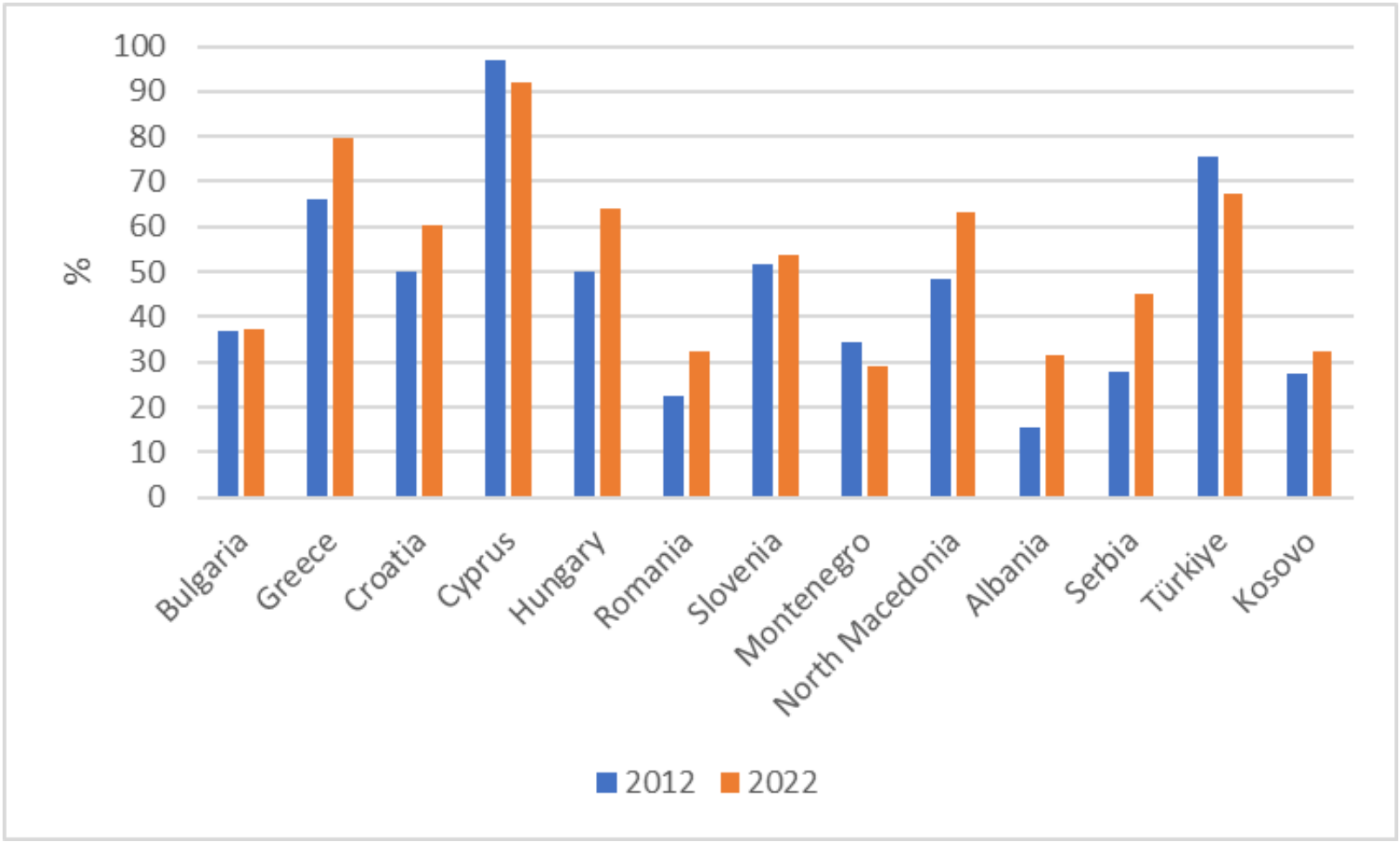




Key Regional Energy Issues

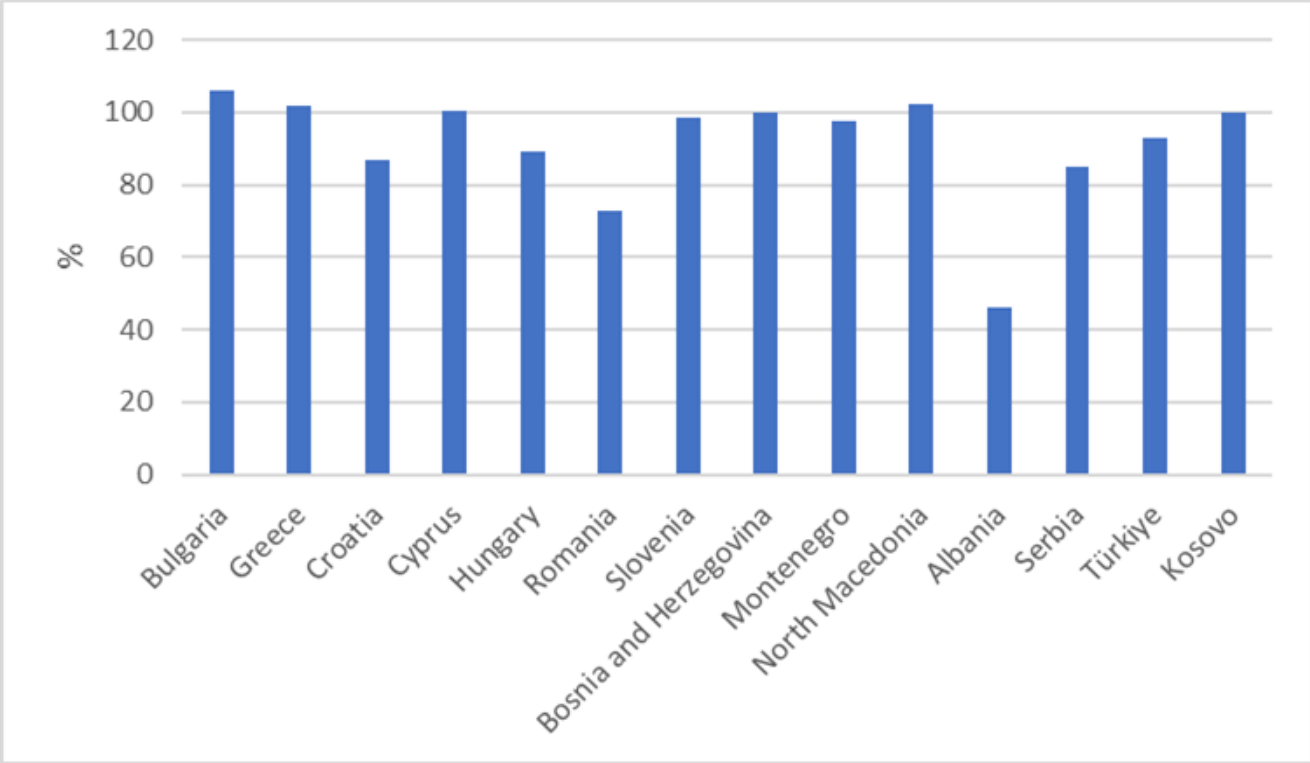
- Marked divergence between EU and SEE energy strategies
- SEE is more energy security vulnerable than the rest of Europe
- SEE's high hydrocarbon dependence
- Electricity's gas alters supply balance
- Lack of adequate electricity and gas interconnections
- Coal/lignite is and will continue for sometime to be relevant
- SEE's path towards decarbonisation is difficult and uncertain
- Nuclear remains a viable option for SEE power generation
- RES growth impeded due to repeated policy failures and electricity grid constraints

Energy Dependence in SE Europe (2012 and 2022)



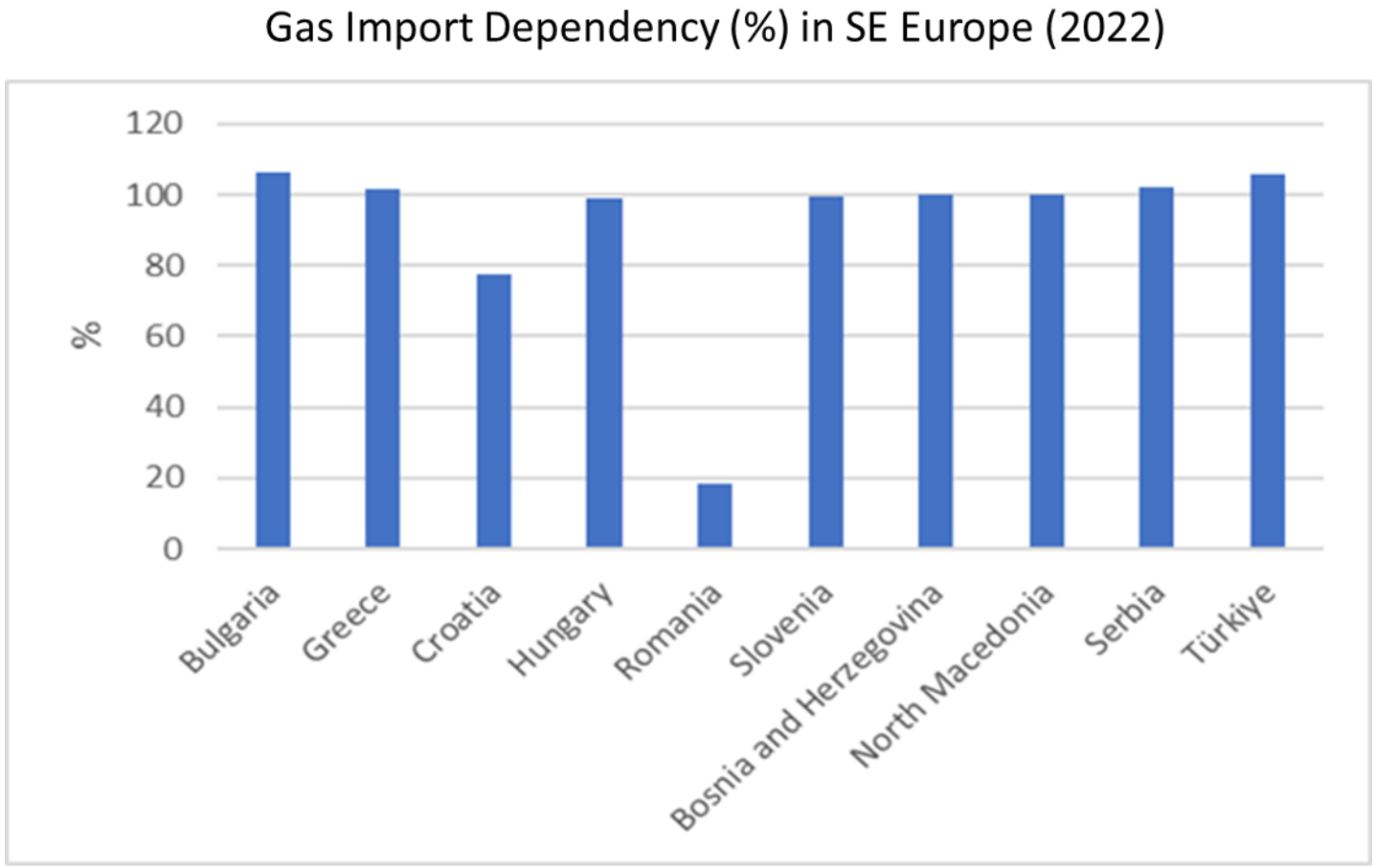
Key Regional Energy Issues – Oil Import Dependency

Oil Import Dependency (%) in SE Europe (2022)



Note: A dependency rate in excess of 100% relates to the build-up of stocks.

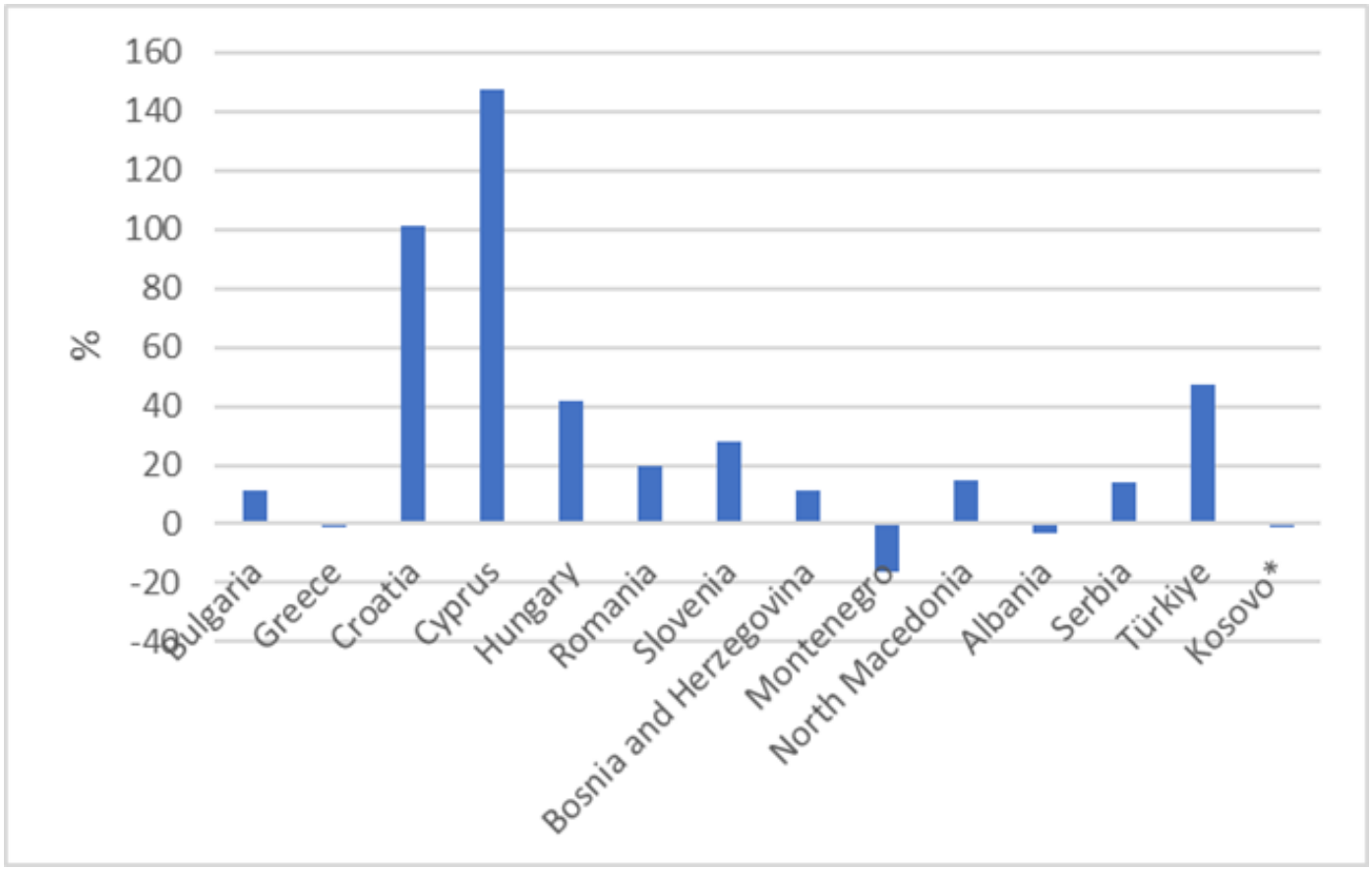
Key Regional Energy Issues – Gas Import Dependency



Note: Albania, Cyprus, Montenegro and Kosovo do not import natural gas

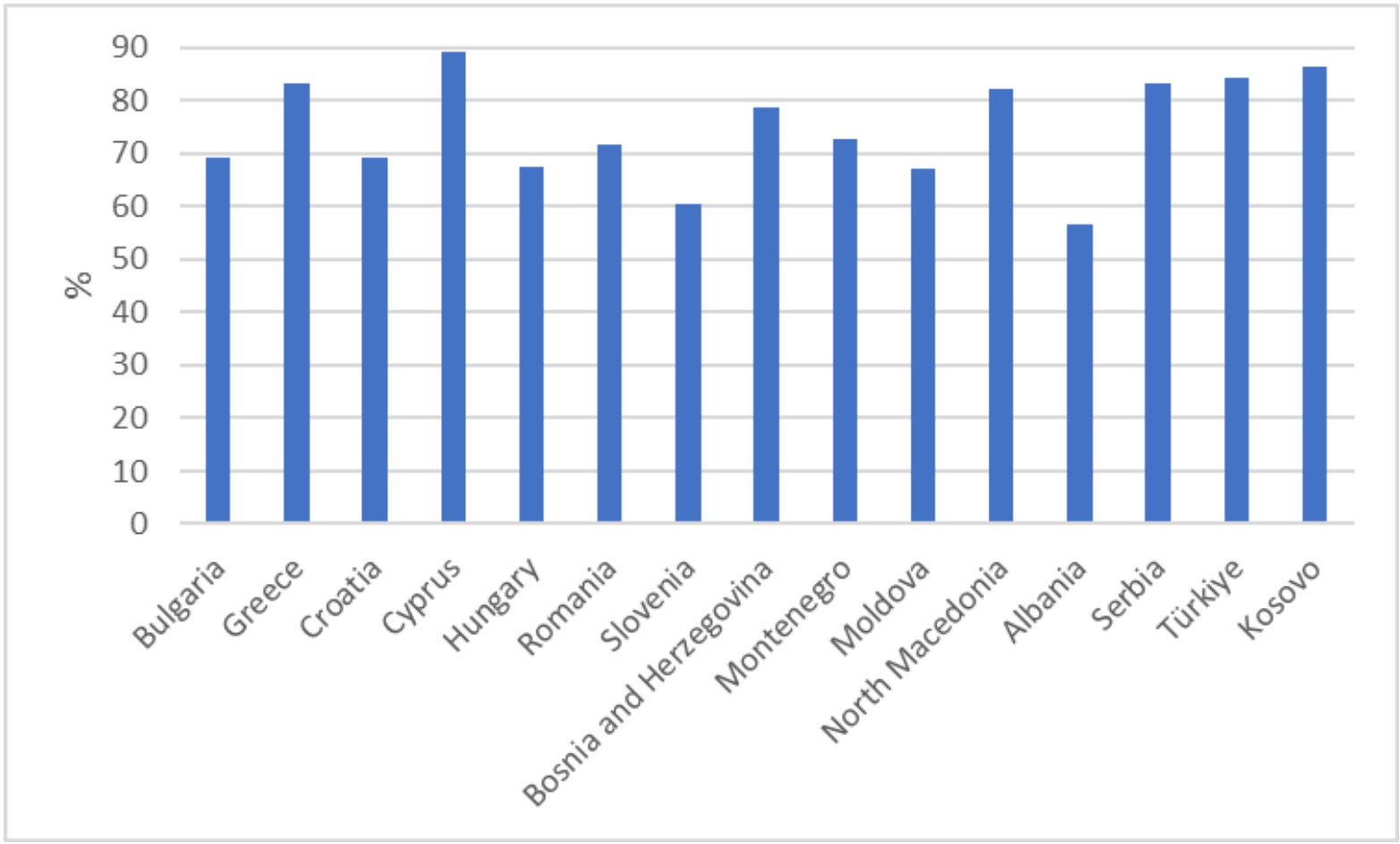
Key Regional Energy Issues – Solid Fuels Import Dependency

Solid Fuels Import Dependency (%) in SE Europe (2022)

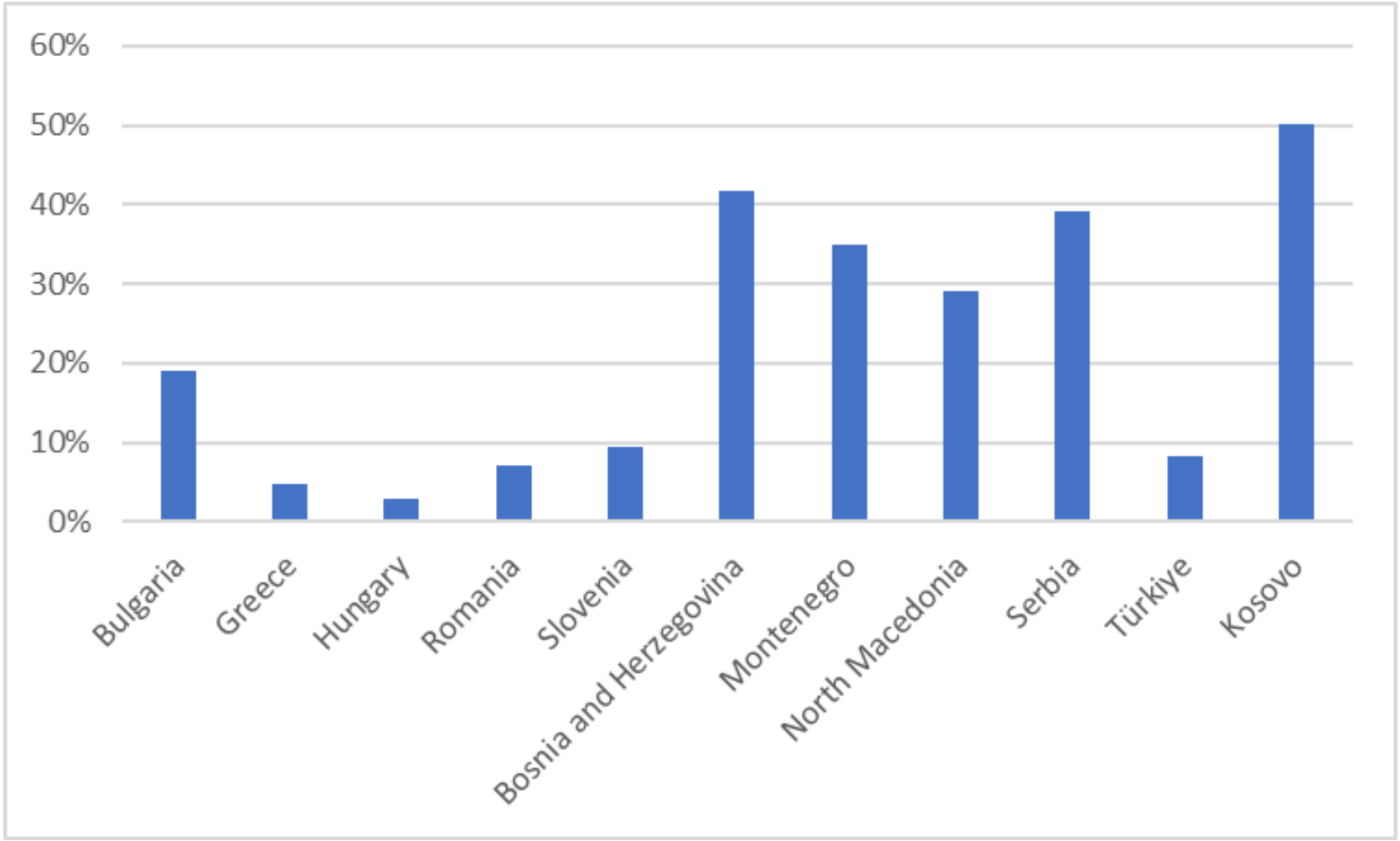


Note: A dependency rate in excess of 100% relates to the build-up of stocks. A negative dependency rate indicates a net exporter of energy.

Key Regional Energy Issues – High Share of **Fossil Fuels** in SEE's Gross Available Energy



Key Regional Energy Issues – High Share of **Lignite** in SEE's Gross Available Energy



Key Regional Energy Issues – EU Decarbonisation Goals in SE Europe

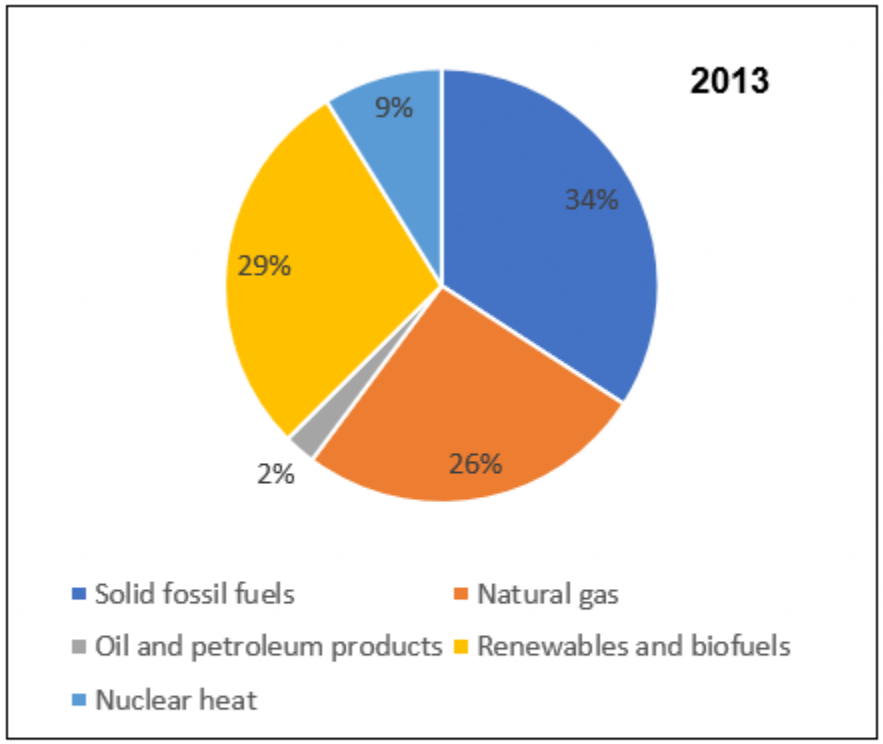
- The EU's decarbonisation goals aim to drastically reduce GHG emissions to combat climate change and transition to a climate-neutral economy.
  - By 2030, the EU targets cutting emissions by at least 55% compared to 1990 levels, and by 2050, it aims to achieve net-zero emissions, meaning any remaining emissions would be balanced by carbon removal measures.
  - These goals involve a shift to renewable energy, increased energy efficiency, cleaner transport, sustainable industry practices, and protecting natural carbon sinks, all supported by policies, investments, and regulations under the European Green Deal.
- The road to decarbonisation can be approached at two levels:
  - 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.

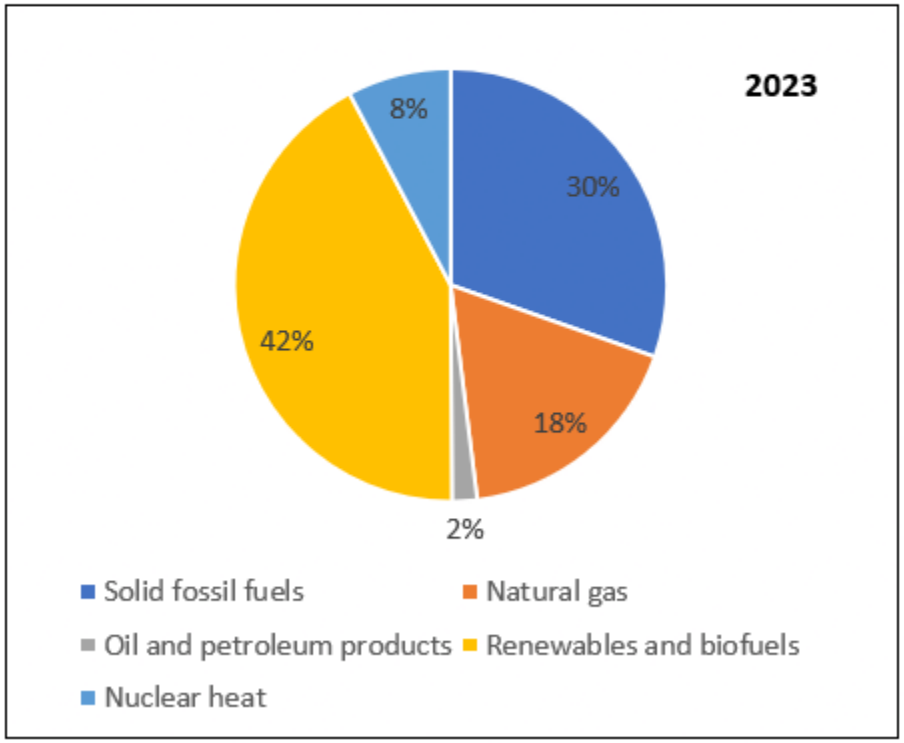
Key Regional Energy Issues – Decarbonisation in SE Europe

Challenges and Trends Towards SE Europe's Decarbonisation:

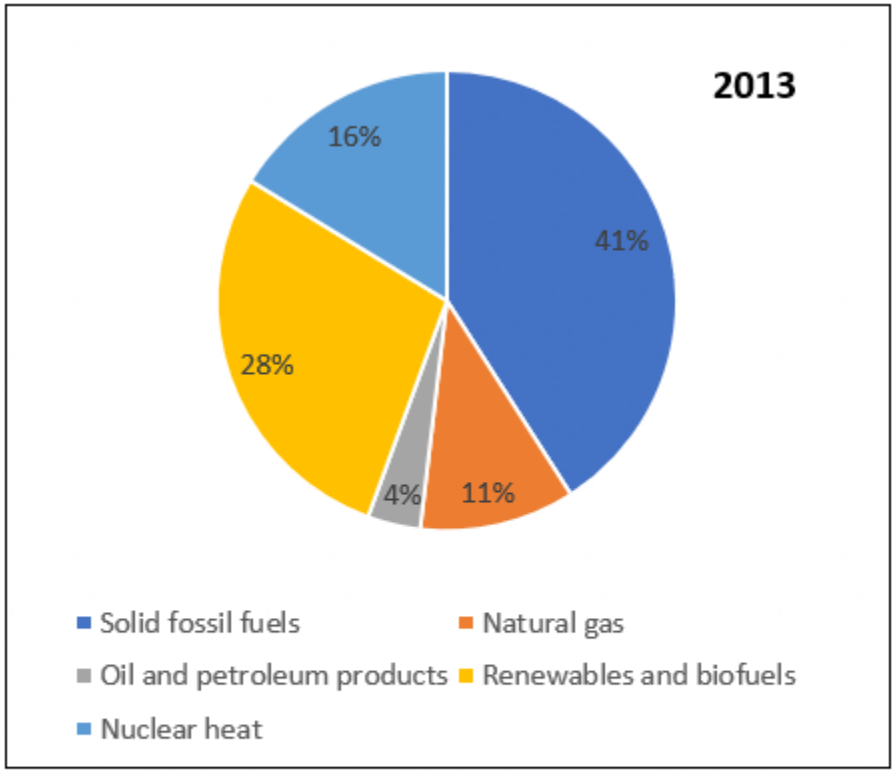
- The **coal predicament** of SE Europe – the region's great dependence on coal-fired power generation vs GHG emission reduction targets
  - According to IENE estimates, the **share of solid fuels to power generation** is anticipated to **increase steadily** in several countries of the region (most notably in Serbia, Kosovo, Croatia, Bosnia and Herzegovina, Montenegro and Türkiye) 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 30 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.

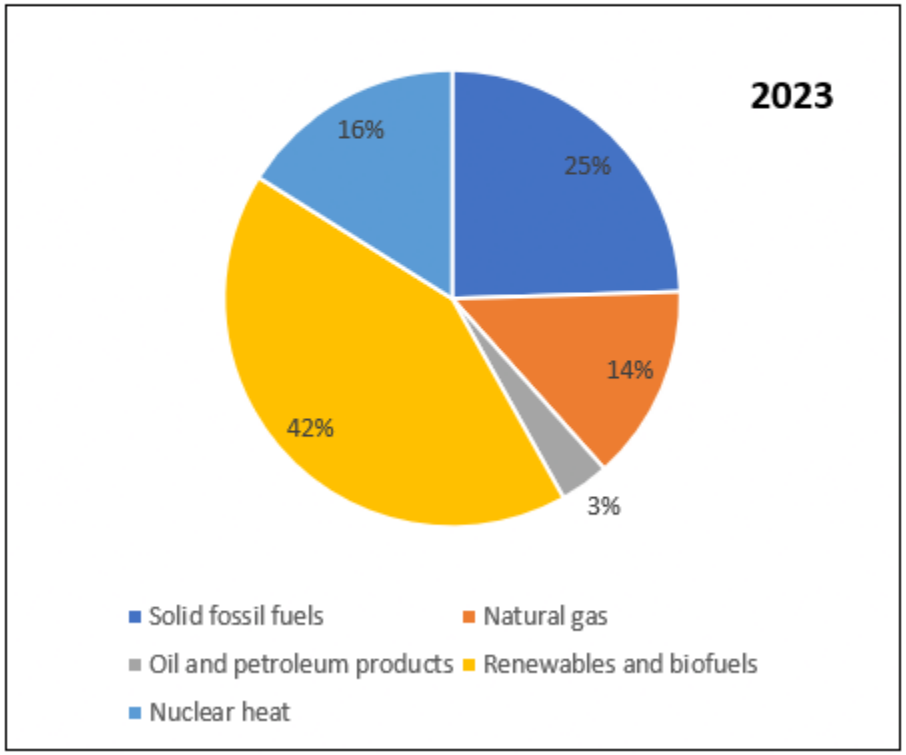
SE Europe's Power Generation Mix, **Including Türkiye**, 2013 and 2023



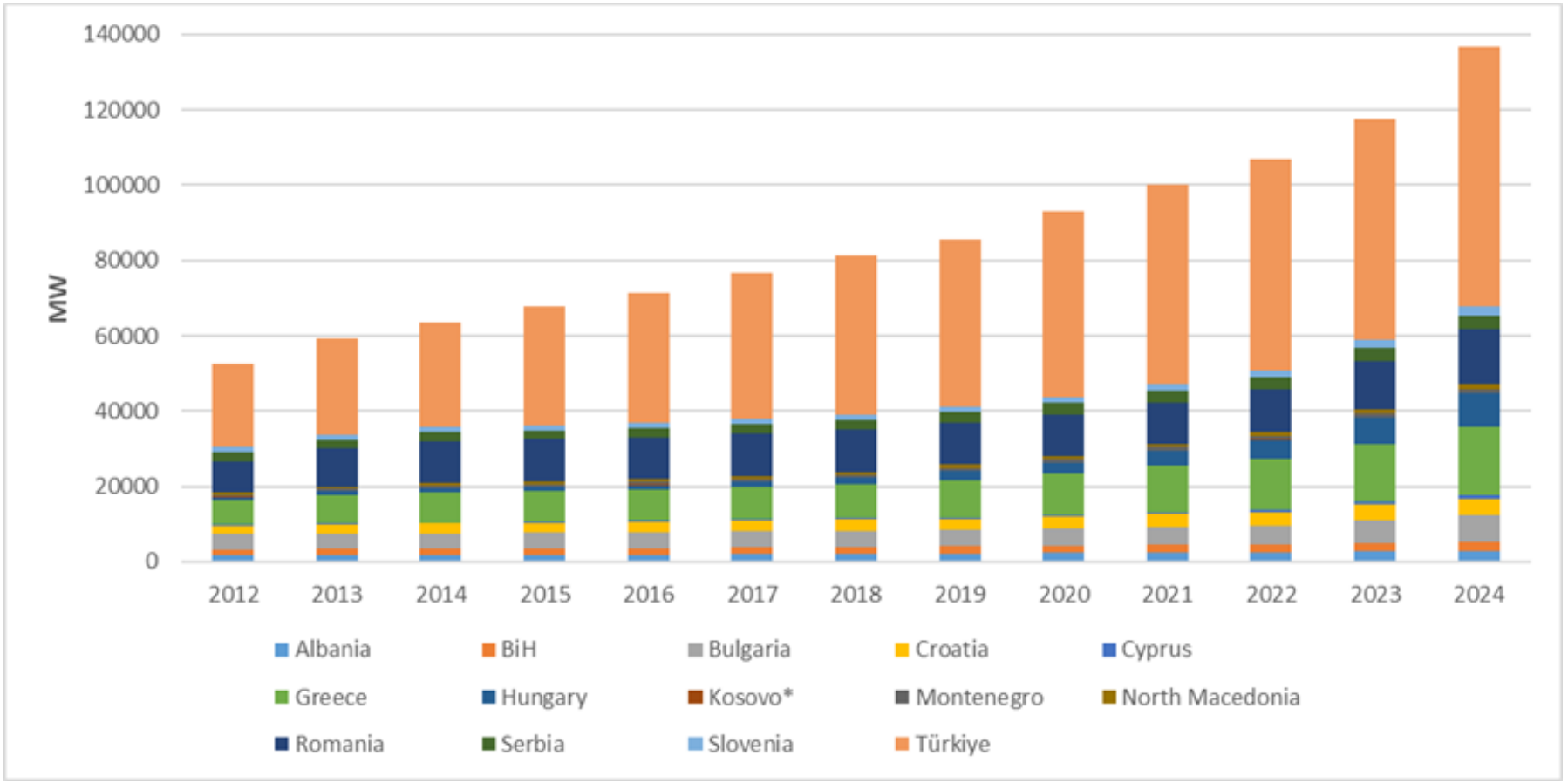


SE Europe's Power Generation Mix, **Without Türkiye**, 2013 and 2023





Total Installed RES Capacity (MW) by Country in SE Europe, 2012-2024



Key Regional Energy Issues
- Energy Security in SE Europe (I)

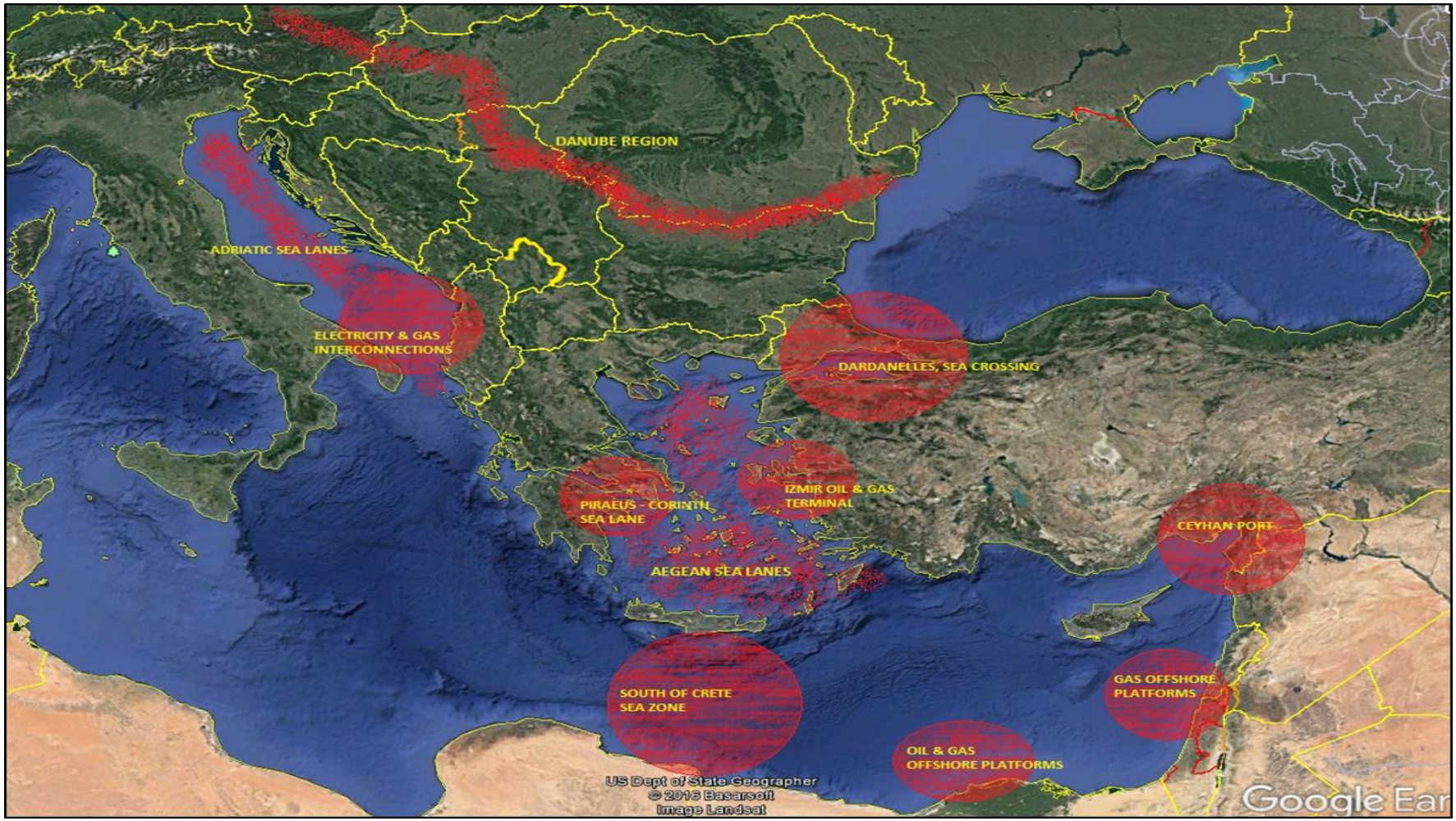
- SE Europe faces **high energy security risk**
  - Because of its geography, its proximity to **high-risk conflict zones** (i.e. Syria, Iraq, Ukraine), refugee flow from the Middle East and North Africa and the location of some of its countries at vital energy supply entry points, SE Europe faces **higher energy security threats** than the rest of Europe.
- Hence, 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.
  - 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**
  - The focus is on gas as a strategic fuel. It is of vital importance to safeguard gas transmission routes (pipelines, LNG terminals)

Energy Security in SE Europe (II)

- Security of **transportation**, shipment of **oil and gas**
  - Gas deliveries to Europe have been repeatedly disrupted, notably during the Russia-Ukraine transit crises in 2006 and 2009, as well as through supply interruptions and contractual tensions affecting SE Europe via Türkiye and Greece in 2011 and 2016; more recently, supplies were severely curtailed following Russia's invasion of Ukraine in 2022, culminating in the complete cessation of Russian gas transit through Ukraine in January 2025, leaving TurkStream as the last remaining pipeline route to Europe.
  - **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.
- 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).

Energy Security in SE Europe (III) – The Regional Energy Hot Spots

- Oil, Gas, Electricity and Security implications



Contentious Issues in SEE and East Mediterranean Energy Supply and Energy Market Operation

- **Geography related**
  - Potential choke points exist in the region and are related to the shipment of oil and gas. These can be found in the Dardanelles, in the sea passage south of Peloponnese and the Suez Canal and refer to both oil and LNG
  - Areas of concern also include the construction of underwater electricity links and underwater gas pipelines in the Aegean and in the East Mediterranean
  - New cross border electricity links in the Western Balkans could become a potentially contentious issue
  - The ongoing supply of Russian crude oil to certain countries in Central Europe through the Soviet-era Druzba pipeline network continues to pose security concerns

- **Market related**
  - There have been several instances where electricity market operation in SEE, based on the Target Model, has resulted in difficult to justify high prices.
  - High price volatility has become a more or less permanent characteristic of electricity market operation in SEE
  - Of equal concern are the problems faced in gas markets in SEE, where EU market regulation and conflicting gas import policies are preventing smooth cross-border gas transit (e.g. this has lately impacted the shipment of gas through the Vertical Corridor)

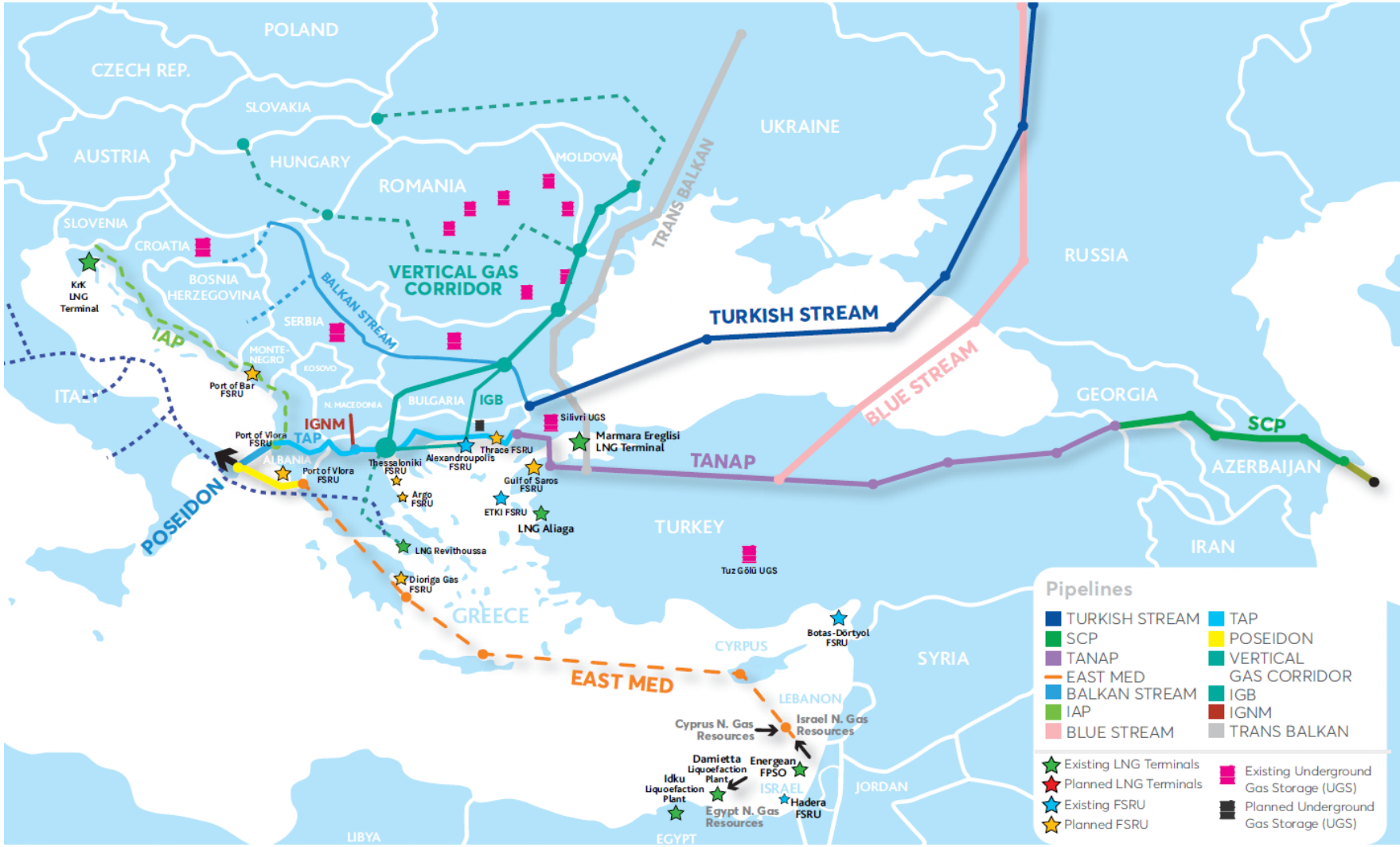
Major Energy Suppliers to SEE: **Azerbaijan**'s Role in Supporting East Mediterranean Energy Supply

- **Southern Gas Corridor (SGC):** Azerbaijan supplies natural gas to Europe via TANAP-TAP system, reaching Greece and Italy, directly strengthening East Med energy security.
- **Supply Diversification:** Azerbaijani gas reduces East Med dependence on single suppliers, supporting EU and regional diversification strategies.
- **Regional Interconnectivity:** Gas delivered to Greece can be redistributed through interconnectors to SE Europe and Eastern Mediterranean markets.
- **Strategic Partnerships:** Azerbaijan maintains strong energy cooperation with Greece, Italy, and the EU, aligning with East Med energy stability goals.
- **Future Expansion Potential:** Long-term contracts and planned capacity increases position Azerbaijan as a reliable bridge supplier for East Med demand growth.

Major Energy Suppliers to SEE: **Kazakhstan**'s Contribution to Strengthening East Mediterranean Energy Supply

- **Caspian Oil Production:** Kazakhstan is one of the world's major oil producers, supplying crude that reaches East Mediterranean markets via international export routes.
- **Transit via the Caspian–Black Sea–Mediterranean Corridor:** Kazakh oil is transported through Caspian Pipeline Consortium (CPC) and alternative routes to Mediterranean terminals, supporting regional supply stability.
- **Supply Diversification:** Kazakhstan provides non-regional, non-OPEC supply, helping East Med countries diversify energy sources.
- **Reliability & Scale:** Large reserves and long-term production capacity enhance predictability and security of supply for Mediterranean refiners.
- **Strategic Energy Partner:** Kazakhstan cooperates with EU and Mediterranean partners on energy trade and infrastructure resilience.

An Expanded South Gas Corridor

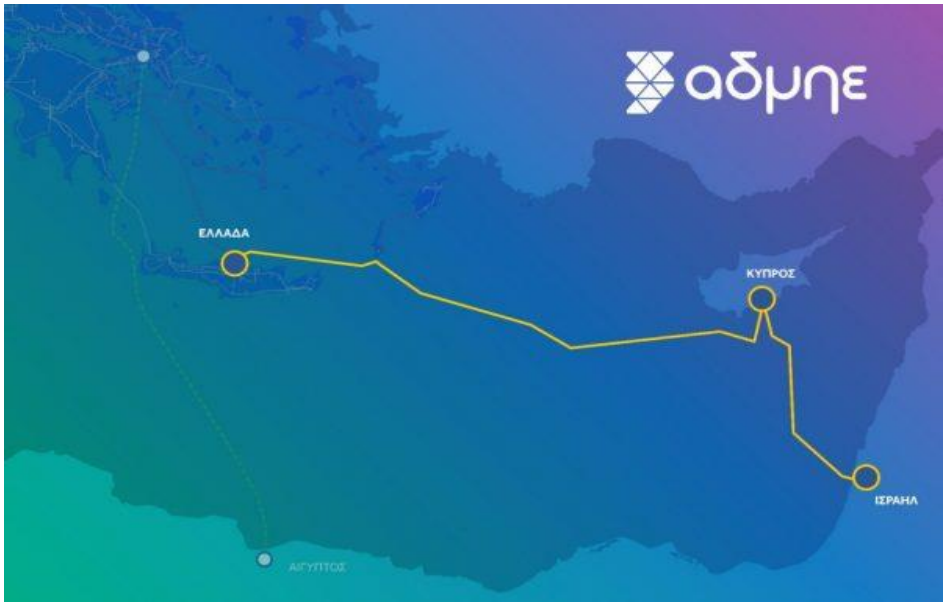


The Vertical Corridor

Electricity Interconnections in SE Europe

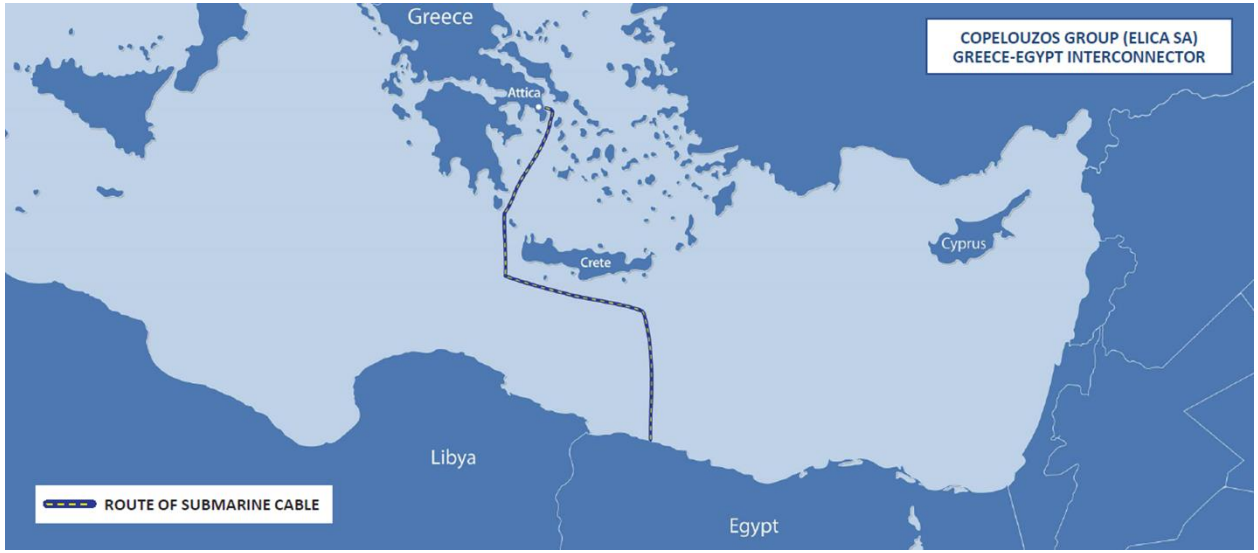
Source: IPTO's Ten Year Network Development Plan 2025-2034

Great Sea Interconnector and Greece-Egypt Electricity Interconnector

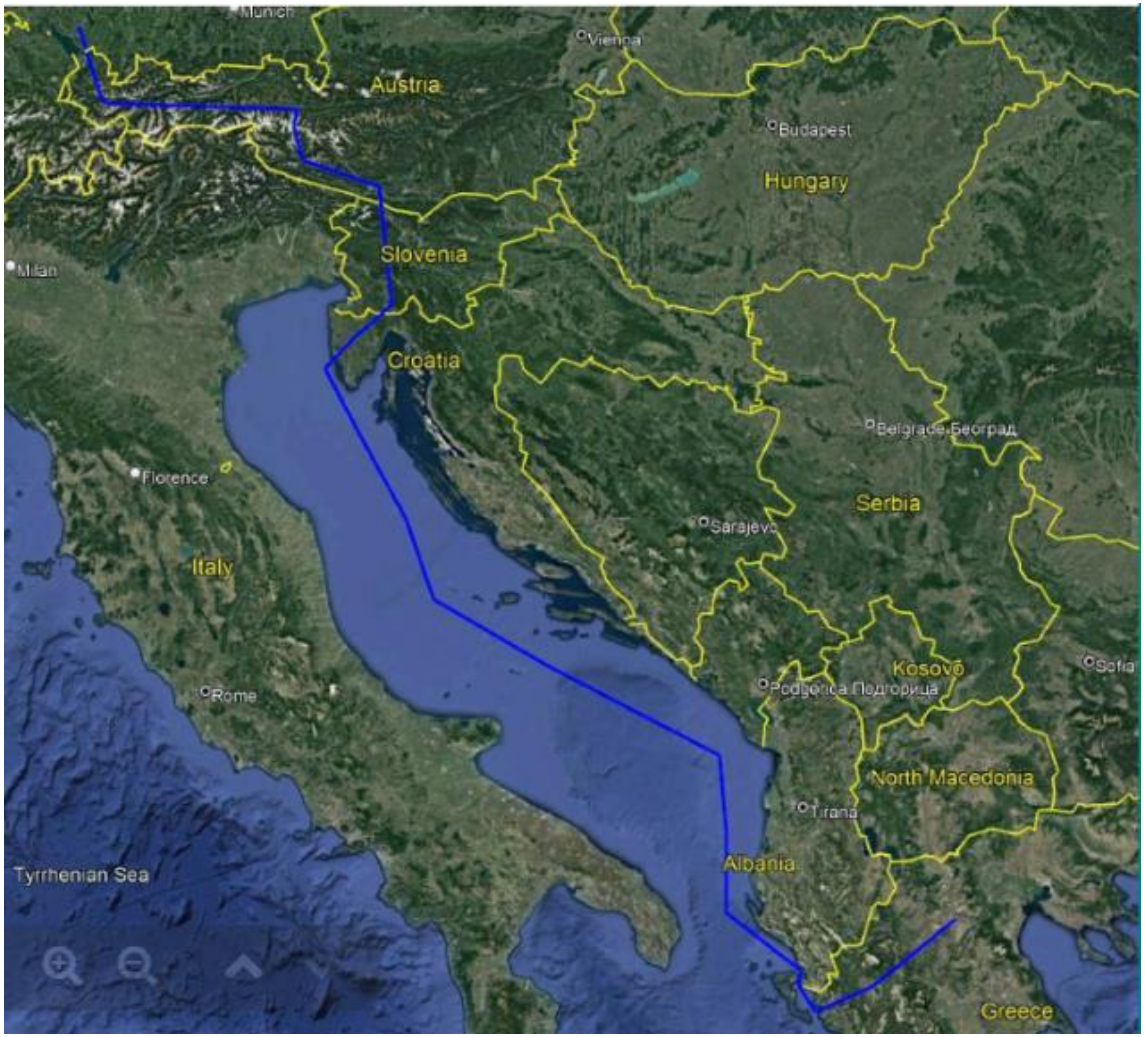


Source: IPTO

Source: COPELOUZOS GROUP



Green Aegean Interconnector



Nuclear Power in SE Europe

- Nuclear power remains an **important component** of the energy mix in SE Europe, meeting essential base-load electricity needs in several key countries—namely Romania, Bulgaria, Croatia, Slovenia, and Hungary—and aligning well with the EU's decarbonization objectives.
- In 2023, nuclear power covered 8% of SE Europe's (incl. Türkiye) gross electricity generation, remaining almost stable, compared to 2013 levels.
- With **Bulgaria** and **Romania** pursuing plans to expand their nuclear capacity and **Türkiye** moving ahead to introduce nuclear power generation for the first time in 2026, the role of nuclear energy is expected to **grow significantly over the next decade**, strengthening the region's power generation base.
- Beyond traditional large-scale reactors, **small modular reactors (SMRs)** are gaining strategic importance in SE Europe, as they provide flexible, scalable, and cost-effective nuclear options suitable for countries with smaller grids or limited infrastructure.

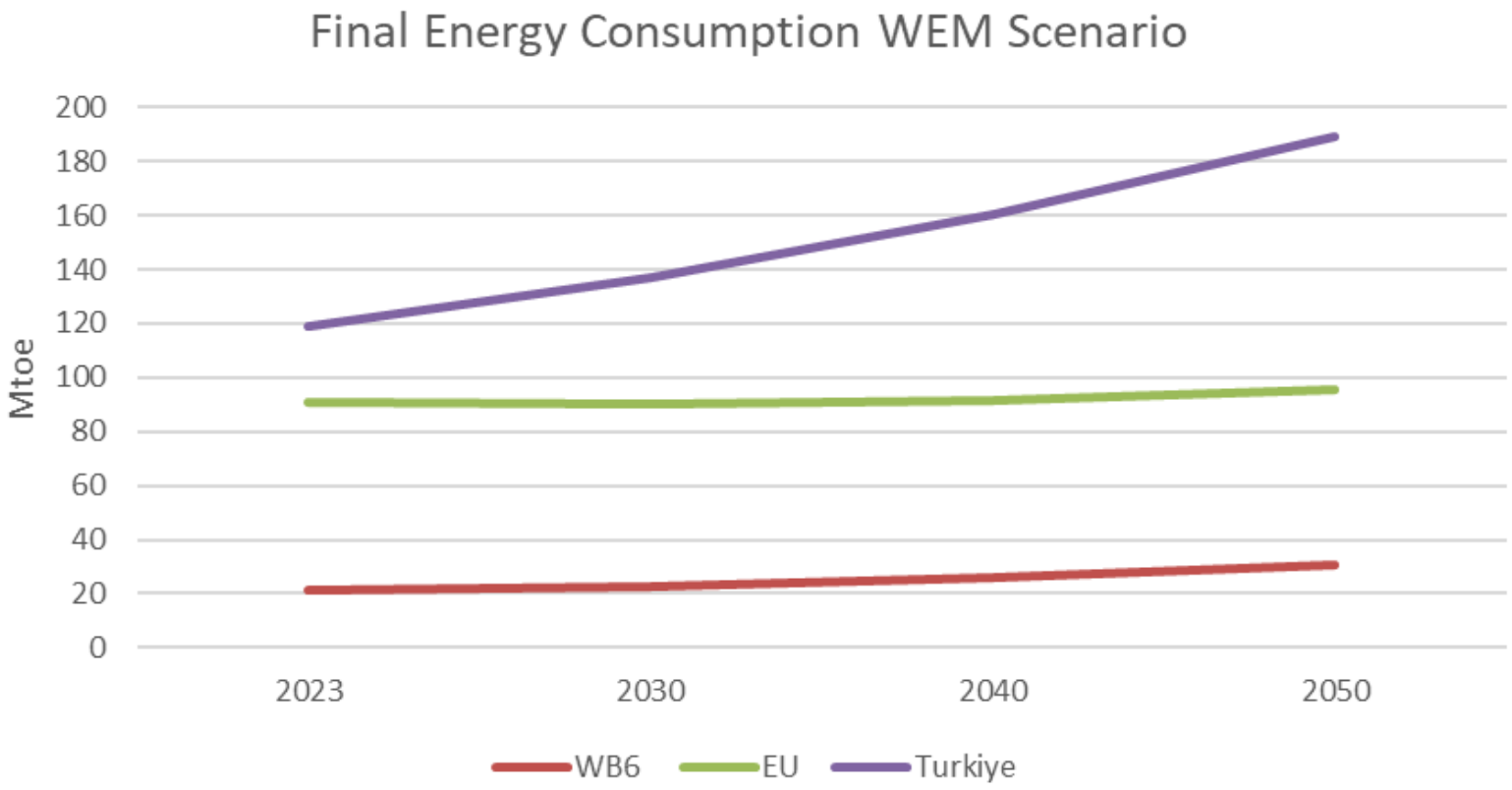
Nuclear Power Plants in SE Europe

Source: IENE study “SE Europe Energy Outlook 2025/2026”, Athens, 2026

Energy Demand and Supply Projections in SEE

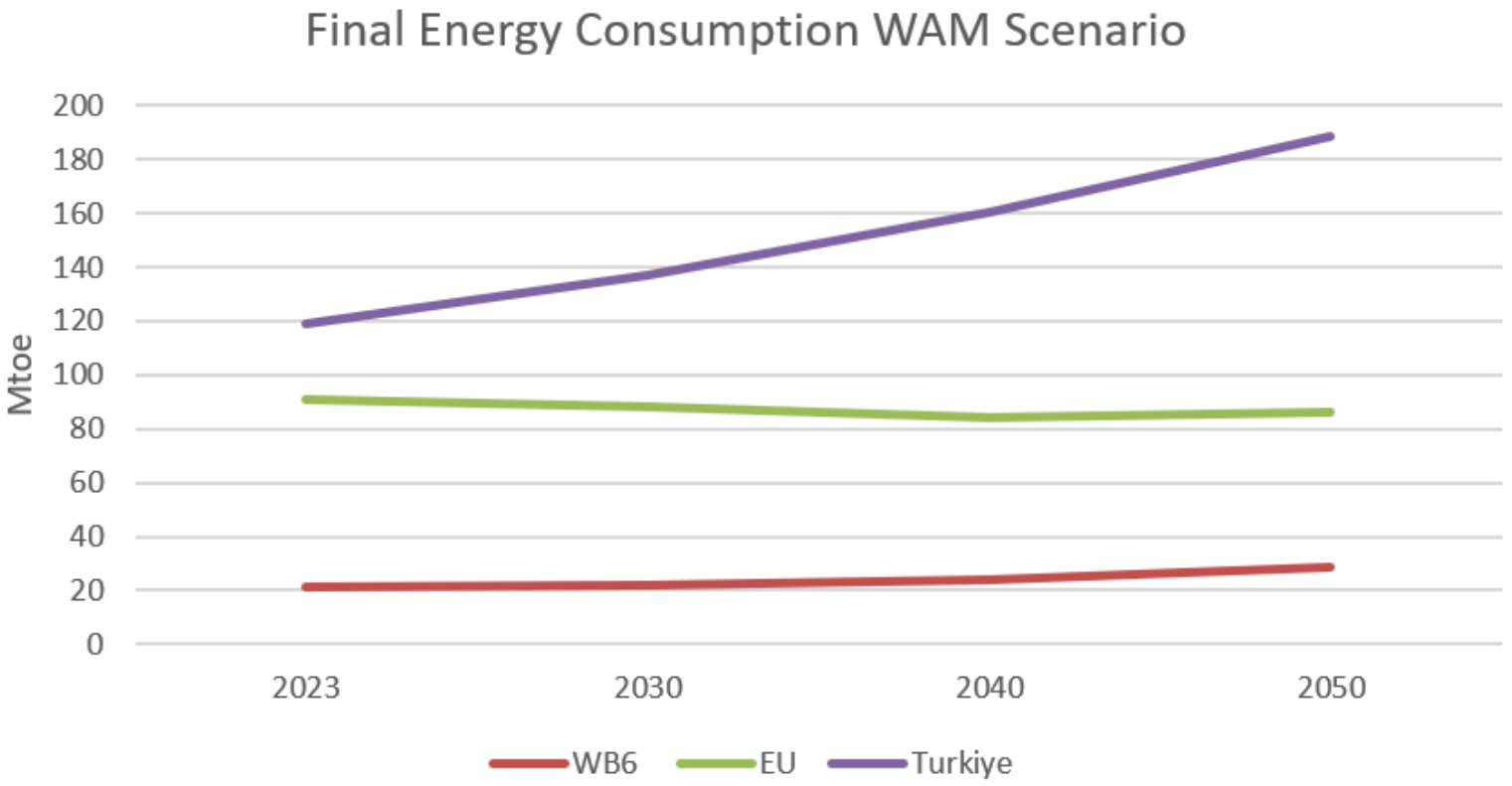
- The development of the Outlook to 2050 was carried out using the **KINESYS+ modelling framework**, built on the **TIMES (The Integrated MARKAL EFOM System) model generator**.
  - TIMES is a widely recognized bottom-up, technology-rich, cost-optimization modelling platform developed under the IEA-ETSAP programme.
  - The KINESYS+ framework has been configured to support multi-regional modelling with detailed regional energy system representations and explicit handling of interconnections and commodity trade. This modelling exercise targets the long-term decarbonisation of the SEE energy systems by exploring alternative scenario pathways based on contrasting policy and technology narratives, aligned with EU targets and regional commitments.
- **Three scenarios** are analysed in this study as described below:
  - The **WEM scenario (With Existing Measures)** represents a continuation of current efforts and policies, capturing a CO2 trajectory at the sectoral level derived from the national strategies, National Energy and Climate Plans and UNFCCC submissions of the countries, without additional mitigation ambition.
  - The **WAM scenario (With Additional Measures)** reflects enhanced efforts still within a non-net-zero framework; it applies more ambitious but still realistic sectoral CO2 reductions, based on the same national sources as WEM.
  - The **NZ (Net Zero) scenario** builds upon the sectoral goals of the WAM scenario and applies an overarching constraint of achieving net zero GHG emissions at the national level for each of the targeted countries, thereby forcing a system-wide transformation in line with long-term climate neutrality targets

Final Energy Consumption in SE Europe: WEM Scenario (2023-2050)



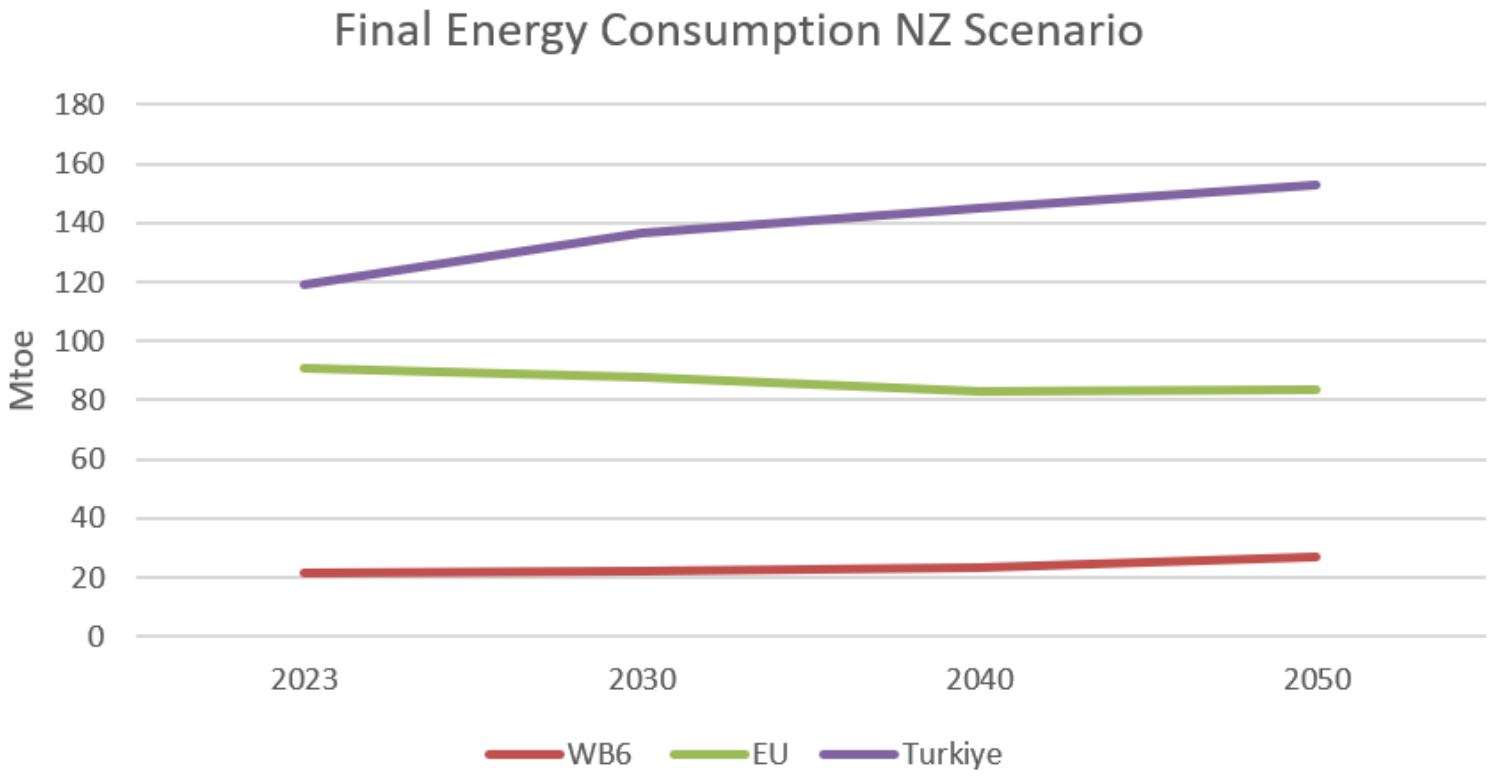
Source: IENE

Final Energy Consumption in SE Europe: WAM Scenario (2023-2050)



Source: IENE

Final Energy Consumption in SE Europe: NZ Scenario (2023-2050)



Source: IENE

Findings of SEE Energy Investment Outlook Per Country (2025-2035)

Country	Estimated Investment (mn €) 2025 Estimate	Estimated Investment (mn €) 2021 Estimate
Albania	6,725	4,500
Bosnia & Herzegovina	4,500	9,400
Bulgaria	65,000	47,000
Croatia	47,100	21,000
Cyprus	20,650	16,200
Greece	93,000	44,400
Hungary	28,950	25,300
Israel	29,500	39,300
Kosovo	7,400	7,400
Montenegro	4,600	4,600
North Macedonia	10,400	10,400
Romania	60,500	50,100
Serbia	52,150	15,200
Slovenia	17,550	12,100
Türkiye	212,200	130,000
Moldova	8,000	-
Total	668,225	436,900

Findings of SEE Energy Investment Outlook Per Sector (2025-2035)

	Energy sector	*2025 Investment estimate (€ mn)*	*2021 Investment estimate (€ mn)*
OIL	**Upstream**	***79,895***	***63,000***
	Downstream		
GAS	**Country Gas Networks**	***42,070***	***25,150***
ELECTRICITY	**Power Generation**	***210,530***	***150,150***
	Electricity Grids		
	RES	***180,150***	***109,900***
ENERGY EFFICIENCY	**Energy Efficiency**	***155,580***	***88,700***
	Total anticipated investments by 2025-2035	***668,225***	***436,900***
	Gas infrastructure	***27,564***	***23,303***
	Electricity Interconnections	***15,216***	***8,440***
	Cross-border energy projects (total)	***42,780***	***31,743***
	Grand Total	***711,005***	***468,643***

Source: IENE

Findings of Energy Investment Outlook Per Sector in **Greece** (2025-2035)

	Project sector	Description	Investment estimate (€ mn)
OIL	Upstream	• Field surveys, new oil and gas drilling, construction of infrastructure on land and at sea	8,500
	Downstream	• Upgrading and modernizing refining facilities	
GAS	Gas Network	• Development of urban and regional networks (city grids) • Cross-border pipelines • Underground gas storage facility in South Kavala • LNG terminals and FSRUs	4,000
ELECTRICITY	Power Generation (new units)	• Prinos CCUS • CCGT units • Energy storage (including batteries and pumped storage projects)	21,000
	Electricity Grid	• Hybrid RES systems in the island area • Upgrading and expansion of the existing network and island interconnection (including new H/T transmission lines)	
	RES	• Small Hydro • Wind (onshore and offshore) • Solar PV • Concentrating Solar Power • Biomass (including liquid biofuels) • Geothermal energy (high and low enthalpy) • Green hydrogen/CCUS units	29,000
ENERGY EFFICIENCY		• Electric Vehicles • Energy upgrading of buildings/transport	30,500
	Total anticipated investments by 2035		**93,000**

Findings of Energy Investment Outlook Per Sector in **Cyprus** (2025-2035)

	Project sector	Description	Investment estimate (€ mn)
OIL	Upstream	• Field Exploration • Development of new oil and gas wells and associated infrastructure	8,100
	Downstream	• Loading Terminals • Storage facilities	
GAS	Gas Network	• Grid development • Main intra country pipeline(s) • Storage facilities • FSRU Terminal	550
ELECTRICITY	Power Generation	• Gas (including CHP)	2,000
	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)	5,000
ENERGY EFFICIENCY		• Energy upgrading of buildings/transport	5,000
	Total anticipated investments by 2030		**20,650**

Key Messages (I)

- **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)
- 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 become somewhat less uncertain, as global market sentiment has shifted toward a more favourable stance on fossil fuel development. This shift has boosted investor confidence and improved access to capital for the sector
- **Peripheral countries** are playing a very 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
- **Nuclear power** remains a viable option since it covers important base load requirements in certain key countries and is fully compatible and supportive of EU's (revised) decarbonisation policies. Beyond traditional large-scale reactors, **small modular reactors (SMRs)** are gaining strategic importance in SE Europe.

Key Messages (II)

- **Energy efficiency** in SE Europe is becoming more relevant. The "Energy Efficiency First" principle serves as a crucial policy framework, emphasising demand reduction before supply expansion.
- The SEE countries 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)
- **Electricity price disparities** within SE Europe have become increasingly evident in recent years, reflecting structural variations in energy mixes, levels of market integration, and infrastructure development.
- **RES curtailments** have become an increasingly pressing challenge in SE Europe as the region accelerates its clean energy transition.
- At present, most **green hydrogen** initiatives in SE Europe are driven more by political ambition than by economic viability
- **Carbon Capture, Utilisation, and Storage (CCUS)** in SE Europe, although still at an early stage, is moving ahead with actual projects.
- **Investment prospects** in the broader SEE region for energy related basic infrastructure and energy projects across the board (i.e. electricity, natural gas, RES, thermal power plants, oil and gas exploration, energy efficiency) look positive over the next decade, with total investment potential surpassing €800 bn.

Sponsors and Supporters for SEEEO 2025/2026

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