



A Brief Presentation of Greece's Energy Sector

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A Presentation by Mr. **Dimitris Mezartasoglou**
Head of Research IENE

INSTITUTE OF ENERGY
FOR SOUTH EAST EUROPE





Source: IENE

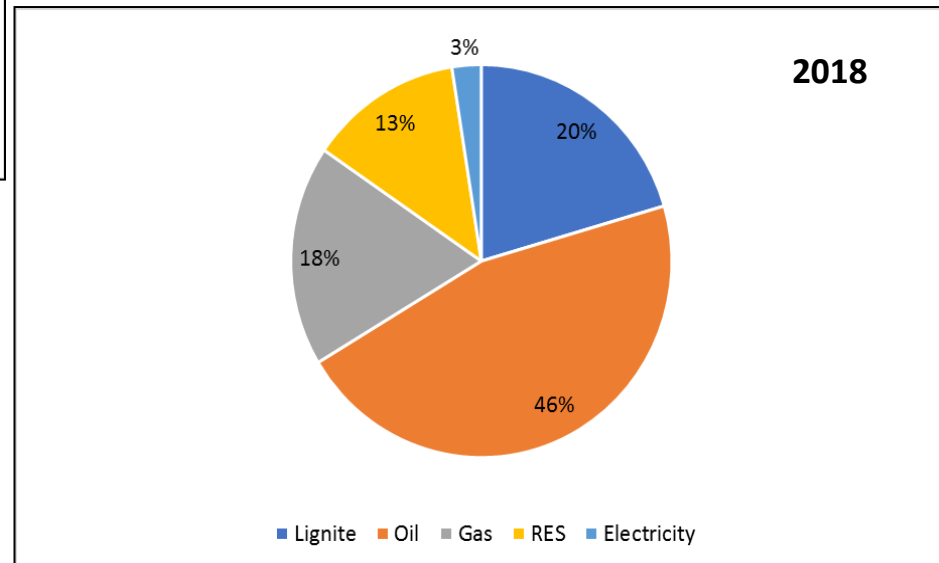
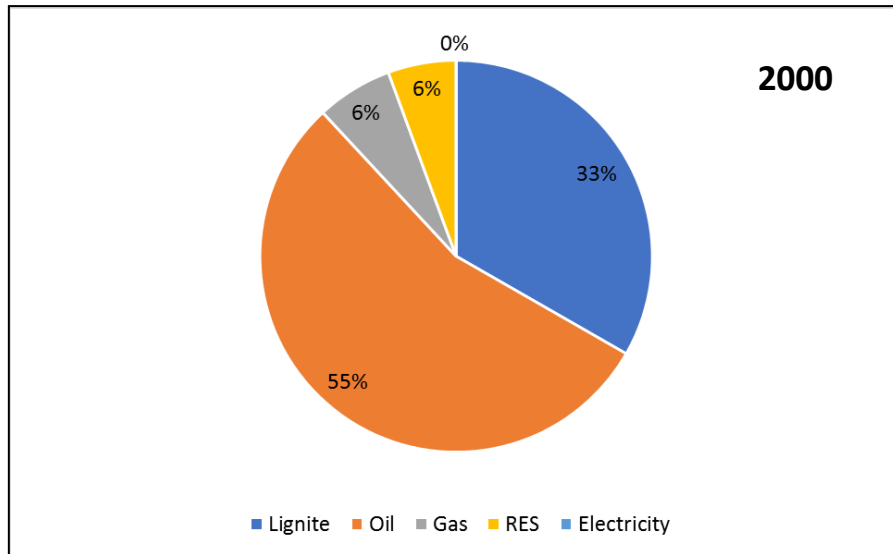
Available (in Greek) [here](#)

The Greek Economy – Real GDP Change (%), 2012-2022

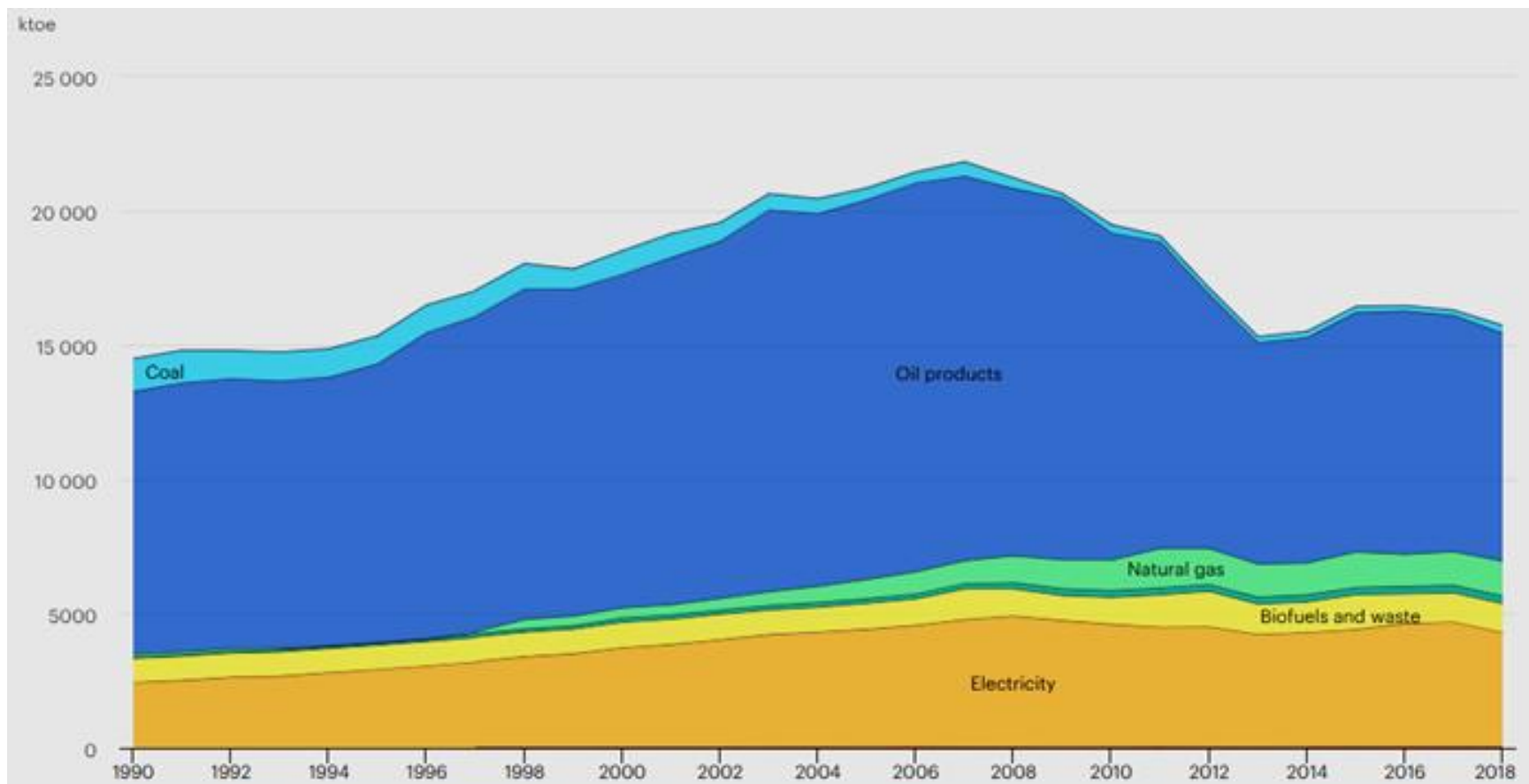
	5-year average	Autumn 2020 forecast					
	2012-16	2017	2018	2019	2020	2021	2022
Belgium	1.2	1.6	1.8	1.7	-8.4	4.1	3.5
Germany	1.4	2.6	1.3	0.6	-5.6	3.5	2.6
Estonia	2.5	5.5	4.4	5.0	-4.6	3.4	3.5
Ireland	7.4	9.1	8.5	5.6	-2.3	2.9	2.6
Greece	-2.0	1.3	1.6	1.9	-9.0	5.0	3.5
Spain	0.8	3.0	2.4	2.0	-12.4	5.4	4.8
France	0.8	2.3	1.8	1.5	-9.4	5.8	3.1
Italy	-0.6	1.7	0.9	0.3	-9.9	4.1	2.8
Cyprus	-0.4	5.2	5.2	3.1	-6.2	3.7	3.0
Latvia	2.8	3.3	4.0	2.1	-5.6	4.9	3.5
Lithuania	3.1	4.3	3.9	4.3	-2.2	3.0	2.6
Luxembourg	3.3	1.8	3.1	2.3	-4.5	3.9	2.7
Malta	6.1	8.0	5.2	4.9	-7.3	3.0	6.2
Netherlands	0.9	2.9	2.4	1.7	-5.3	2.2	1.9
Austria	0.9	2.4	2.6	1.4	-7.1	4.1	2.5
Portugal	-0.1	3.5	2.8	2.2	-9.3	5.4	3.5
Slovenia	0.9	4.8	4.4	3.2	-7.1	5.1	3.8
Slovakia	2.4	3.0	3.8	2.3	-7.5	4.7	4.3
Finland	0.1	3.3	1.5	1.1	-4.3	2.9	2.2
Euro area	0.8	2.6	1.9	1.3	-7.8	4.2	3.0
Bulgaria	2.1	3.5	3.1	3.7	-5.1	2.6	3.7
Czechia	1.9	5.2	3.2	2.3	-6.9	3.1	4.5
Denmark	1.7	2.8	2.2	2.8	-3.9	3.5	2.4
Croatia	0.5	3.4	2.8	2.9	-9.6	5.7	3.7
Hungary	2.1	4.3	5.4	4.6	-6.4	4.0	4.5
Poland	2.6	4.8	5.4	4.5	-3.6	3.3	3.5
Romania	3.4	7.3	4.5	4.2	-5.2	3.3	3.8
Sweden	2.0	2.6	2.0	1.3	-3.4	3.3	2.4
EU	1.0	2.8	2.1	1.5	-7.4	4.1	3.0
<i>P.M.: United Kingdom</i>	2.1	1.7	1.3	1.3	-10.3	3.3	2.1

Source: European Commission

Total Primary Energy Supply in Greece, 2000 and 2018

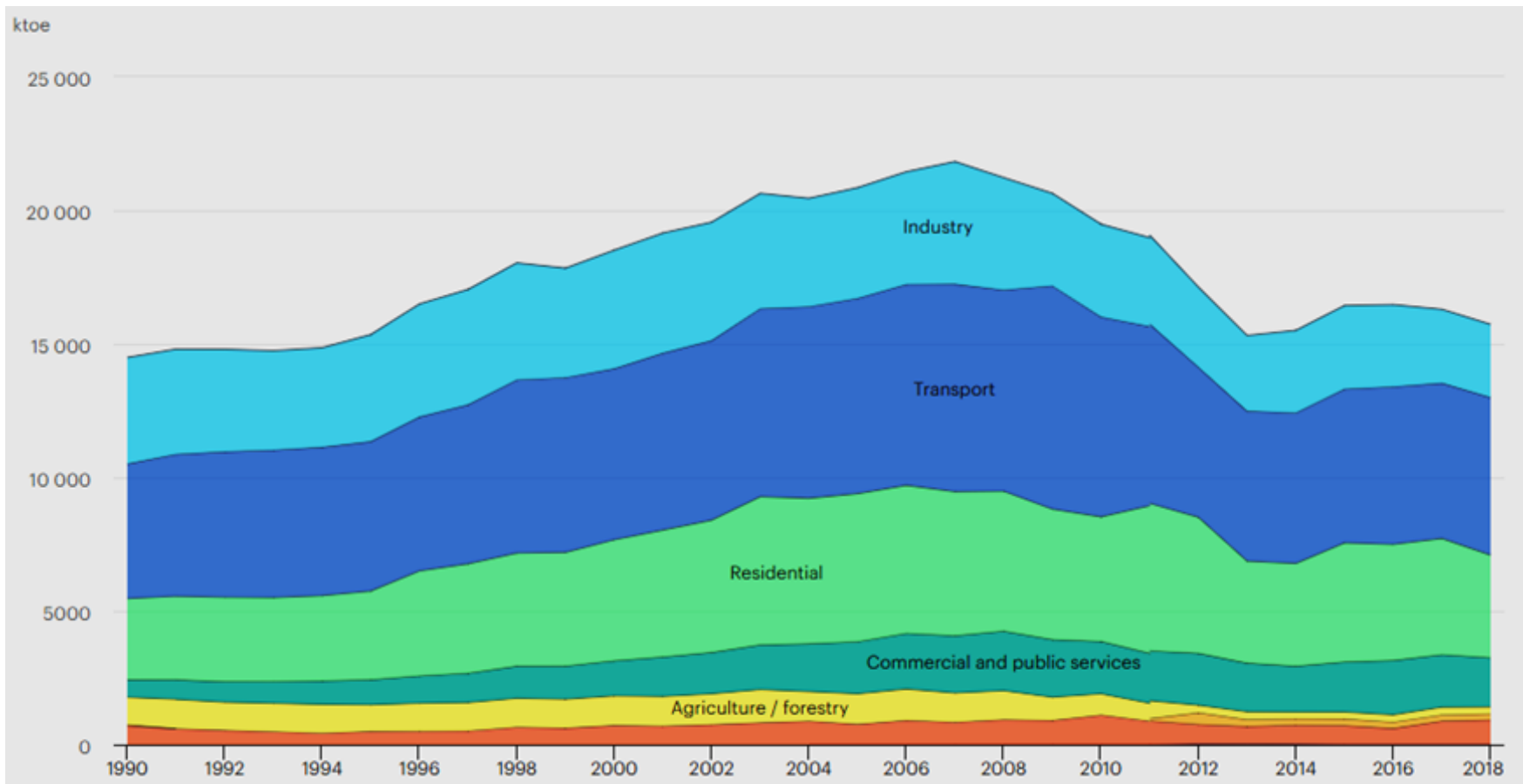


Final Energy Consumption per Fuel in Greece, 1990-2018



Source: IEA

Final Energy Consumption per Sector in Greece, 1990-2018



Source: IEA

Key Messages of IENE's Annual Report 2020 on Greece's Energy Sector (I)

- ❑ **Environmental Law 4685/2020**
- ❑ **New updated National Waste Management Plan**
- ❑ **In 2020, there were substantial benefits for the consumers**
 - Participation of 30 suppliers in the domestic electricity retail market (October 2020)
 - Participation of 24 suppliers in the domestic gas retail market (October 2020)
 - New online electricity and gas price comparison tool from Regulatory Authority for Energy (RAE)
 - **Before:** “Saving at Home” programme, **Now:** “Saving-Autonomous” programme
- ❑ The **ongoing restructuring of PPC** started in 2020 and it is of paramount importance as well as the **decarbonization plan** in Greece's lignite areas, where the relevant public consultation was recently completed.
- ❑ In 2019, a positive development was the completion and the update of **Greece's National Energy and Climate Plan by 2030** and the country's **long-term energy planning by 2050**.
- ❑ In 2019, the **Revithoussa LNG terminal played an important role in supplying Greece with natural gas**, as this terminal imported almost half (48%) of the total gas volumes, compared to piped gas.
 - 50 tankers unloaded in Revithoussa in 2019, from 10 different countries

Key Messages of IENE's Annual Report 2020 on Greece's Energy Sector (II)

□ Greater harmonization with European market rules

- Implementation of **Target Model – Energy Exchange** (Launch date: November 2020, Futures Market: Launched earlier, in March 2020)
- Establishment of the **Southeast Electricity Network Coordination Center (SEleNe CC)** in Thessaloniki
- **From July 1, 2018:** Gas Balancing Platform and Virtual Trading Point
Within 2021: Gas Trading Platform

□ Privatization of DEPA Infrastructure and DEPA Commercial, HEDNO, further privatization of IPTO, decrease of the Greek State's stake in Hellenic Petroleum (HELPE)

□ Need for a regulatory framework for offshore wind farms

□ Law on the modernization of the spatial and urban planning

□ Acceleration on energy infrastructure projects

- Gas infrastructure projects (e.g. TAP, IGB, Turkish Stream, Alexandroupolis FSRU and Dioryga Gas FSRU, South Kavala underground gas storage facility, projects in national gas grid, CNG and small-scale LNG)
- Electricity infrastructure projects (e.g. interconnection of Cyclades islands, interconnection of Crete-Peloponnese and Crete-Attica, EuroAsia Interconnector, EuroAfrica Interconnector)

□ Emergence of new players in electricity and gas markets

- aggregators in the electricity sector
- traders in the gas sector

Key Messages of IENE's Annual Report 2020 on Greece's Energy Sector (III)

□ Promotion of RES and energy efficiency projects

- New IT system for electronic submission of RES applications
- Need for a sustainable solution for the RES special account

□ Promotion of energy storage projects

- No legal framework for energy storage systems in Greece
- RAE is preparing to grant its first energy storage system licenses
- IENE is now concluding its **"Feasibility Study of Energy Storage Systems' Integration in Crete"**

□ Towards clean energy transition

- **Electric vehicles:** The first Greek law for the promotion of e-mobility was enacted in July 2020, while the "I Move Electrically" program is in progress, which subsidizes with €100 million the purchase of electric vehicles
- **Smart meters:** A tender is expected to be announced shortly by HEDNO for the installation of 7.5 million smart meters
- **Smart islands:**
 - **Agios Efstratios:** Terna Energy was the winning bidder of the tender of the Centre for Renewable Sources & Energy Saving (CRES) for the installation of a hybrid system for the production of electricity & heat from RES
 - **Astypalea:** A Volkswagen's investment, the contractor will be selected in a relevant RAE tender
 - **Kastellorizo?:** In 2019, IENE prepared a study entitled **"Energy Transition of the Island of Kastellorizo"** (The Executive Summary of this study is available [here](#))

□ Establishment of a high-level group of experts, who will propose a **regulatory and legal framework for the promotion of hydrogen**

- To sum up, a **dynamic development of the Greek energy market** is expected over the coming years

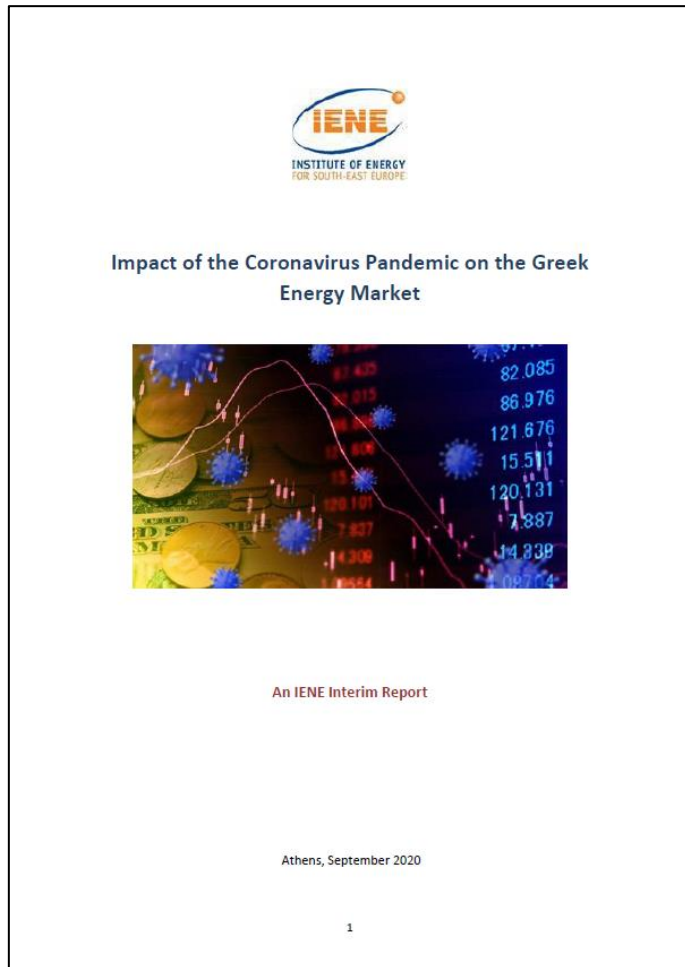
Anticipated Energy Investments in Greece, 2020-2030 (Source: IENE)



Sector	Description	Expected Investments in million €
Hydrocarbons' exploration and production (Upstream)	<ul style="list-style-type: none"> Field exploration, new drilling for oil and natural gas, construction of infrastructure onshore and offshore* 	4,500
Refining and trade (Downstream)	<ul style="list-style-type: none"> Upgrade and modernisation of refining plants 	3,200
Pipelines, natural gas networks and other facilities	<ul style="list-style-type: none"> Development of urban and regional networks (city grids) 	1,200
	<ul style="list-style-type: none"> Cross-border pipelines** 	300
	<ul style="list-style-type: none"> Underground gas storage facility in South Kavala 	400
	<ul style="list-style-type: none"> LNG Terminals (including the FSRU in Alexandroupolis and Agioi Theodoroi and supplementary projects at Revithoussa) 	900
Power generation (new units)	<ul style="list-style-type: none"> PPC's lignite unit (including cogeneration) 	500
	<ul style="list-style-type: none"> Natural gas units (CCGT) 	1,100
	<ul style="list-style-type: none"> Energy storage (including electricity storage devices and pump-storage projects) 	2,500
Power grid	<ul style="list-style-type: none"> Oil units on the islands (including Crete and Rhodes) 	150
	<ul style="list-style-type: none"> Upgrade and extension of existing network and island interconnection (including new high voltage transmission lines) 	7,500
RES	<ul style="list-style-type: none"> Small hydroelectric units 	100
	<ul style="list-style-type: none"> Wind 	4,500
	<ul style="list-style-type: none"> Photovoltaics*** 	3,200
	<ul style="list-style-type: none"> Concentrating Solar Power Systems 	500
	<ul style="list-style-type: none"> Biomass (including liquid biofuels) 	650
	<ul style="list-style-type: none"> Geothermal (high and low enthalpy) 	500
Energy efficiency	<ul style="list-style-type: none"> Buildings' energy upgrade (private and public commercial buildings) 	11,000
Residential and commercial solar power applications	<ul style="list-style-type: none"> Solar power systems in hotels, industry, residences, maintenance, replacement, etc. 	1,500
Research & Innovation	<ul style="list-style-type: none"> Research and innovative energy applications 	1,000
Total Estimated Investments to 2030****		45,200

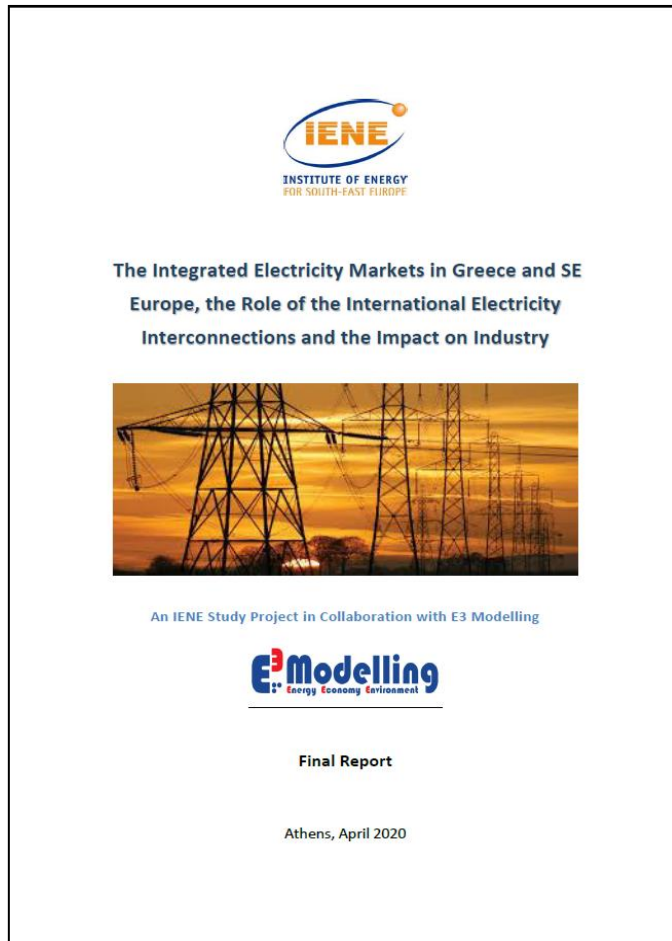
Notes: *Total investment cost is an IENE estimate and is based on 8-10 exploration and production drillings. **Including the TAP and IGB pipelines and the Greece - North Macedonia interconnector pipeline. The East Med pipeline is not included. ***Including central autoproduction units, P/V facilities and power storage systems. ****Investments related to countering climate change, flood control, forests, the cyclical economy and recycling are not included.

IENE's Special Interim Report on COVID-19



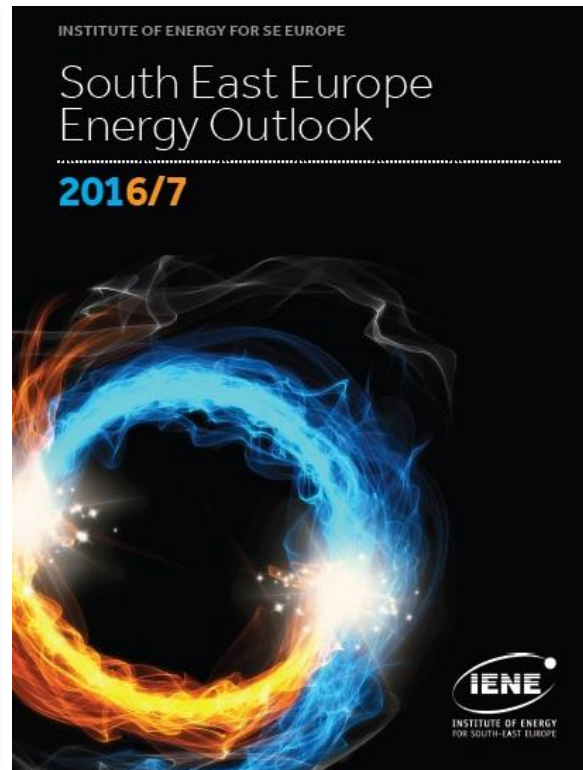
- The most obvious impact has been the **sudden and sharp drop in demand**, which affected all energy markets, resulting in a significant fall in prices, especially in the oil sector, but also affecting gas and, at a lesser degree, electricity.
- Among others, the COVID-19 pandemic adversely affected:
 - hydrocarbon exploration activities
 - the construction and maintenance of energy and related industrial units (power generation, refining, transportation)
 - the building of tankers and LNG and LPG carriers, as well as of special offshore equipment used by the oil and gas industry
 - the electricity providers, oil trading companies and oil and gas producers
 - the manufacturers and installers of photovoltaic panels, wind turbines and batteries for electric vehicles and, consequently, their manufacturers and
 - the EU carbon allowance prices (EU-ETS)
- This Special Interim Report is available [here](#)

IENE's Study on Integrated Electricity Markets in SE Europe



- The **main objective** of this multi-client study was to analyze the framework within which energy-intensive industries in Greece and SE Europe will perform in the years ahead in view of the implementation of the Target Model in Greece.
- The study focused on **two main areas**:
 - an understanding of the functioning of regional electricity markets through the imminent changes, and
 - an examination of the prospects and the repercussions of the electricity market integration among the SEE countries. Regarding this part, the integration refers to the market coupling and the increase of electricity flows, through the related interconnections, and the implementation of the Target Model in many countries of SE Europe.
- The study focused on the **quantitative evaluation of the regional electricity market** with specific focus on electricity market prices at retail and wholesale level and the opportunities risen for industrial consumers and electricity market participants.
- IENE cooperated closely with Professor Pantelis Capros, Scientific Coordinator of E3 Modelling and Chairman of IENE's Scientific Committee, and with his team.

IENE's "SE Europe Energy Outlook" Study



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



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Thank you for your attention

www.iene.eu

dimmeza@iene.gr