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Greek Energy Market

Report 2020



Advancing the Energy Transition

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| Greek Energy Market Report |

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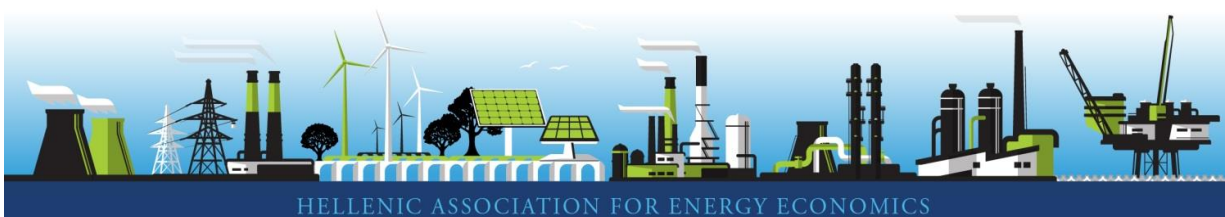
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HAEE 2020

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HELLENIC ASSOCIATION FOR ENERGY ECONOMICS

Hellenic Association for Energy Economics



Hellenic Association for Energy Economics (HAEE) brings together all those who study, debate and promote the knowledge of energy, environment and economy in our country. HAEE is the Greek affiliate of the International Association for Energy Economics (IAEE), which is a non-profit research and professional organization acting as an interdisciplinary forum for the exchange of ideas and experiences among energy experts.

HAEE was founded in 2015 in Greece, and has a global orientation welcoming the participation of researchers and practitioners from around the world interested in energy, environmental and economic related subjects. It acts as an independent consulting body for national and international organizations to whom it provides a broad contribution on issues related to energy, economics, policymaking and theory.

Through meetings and joint initiatives HAEE also provides a means of professional communication and exchange within its members and the authorities defining the Greek energy policy. HAEE organizes meetings amongst experts and specialists interested in networking - organizes conferences and seminars on both national and international levels - promotes training initiatives in the energy and economic sector - provides researches, studies and other services for its members.

HAEE promotes the understanding of energy, environment and economy related topics within universities and encourages the participation in the Association's activities of young students who are invited to seminars and conferences and can make use of the IAEE library for their academic works. HAEE is financially supported by member dues, contributions for research activities carried out for companies and bodies involved in the energy field, and by the sale of conference proceedings as well as conference fees and other initiatives.

National Bank of Greece



NATIONAL BANK
OF GREECE

With its 179-year participation in the country's economic and social life, NBG is one of the most significant Greek financial organizations, as it plays a key role in efforts to support the Greek economy and enable the economic transformation of the country.

The Bank's broad customer base, respected brand name, strong market share in deposits and enhanced capital adequacy ratios that provide the liquidity needed to finance Greek businesses, reflect the long-standing relationship of trust it enjoys with its clientele.

NBG has long been the leading Greek bank in financing the energy sector and has established a strong footprint across all segments of the industry, with investments of €3 billion in corporate customers, €1 billion in renewable energy sources of total capacity (either in operation or under construction) amounting to about 1.45 GWatt and over €100 million in private-public sector partnerships. Being committed to the backing of all major projects that aim to foster economic growth, NBG provides tangible support to the country's aspiration to evolve into a key energy hub for Europe, with obvious benefits for the domestic economy.

Foreword



Assoc. Prof. Dr. Spiros Papaefthimiou
Chairman HAEE

The coronavirus (Covid-19) pandemic has caused an unprecedented global economic and social crisis, significantly affecting all aspects of life. The energy sector is also severely affected by this crisis, which has slowed transport, trade and economic activity across the globe. The whole range of consequences is yet to be revealed and is difficult to predict, however it is already clear that demand for energy resources has dropped, prices have plummeted and production has been declining. The implications of the pandemic for energy systems are still evolving but clean energy transition(s) must be at the center of economic recovery and stimulus plans. Renewables, energy efficiency and energy storage, smart grids, cross-sectoral integration, hydrogen, sustainable agriculture will be some of the cornerstones of the upcoming era. The decline in CO2 emissions needs to continue, while The Clean Energy Package and the New Green Deal should not slip away from the list of national policymakers' and regulators' priorities.

With the newly released "Greek Energy Market Report 2020" the Hellenic Association for Energy Economics presents an analysis and detailed review of the Greek Energy market based on the most recent data and valuable insights. In this regard, HAEE's annual report manages to identify the relative strengths and weaknesses of the Greek energy market during a time of great change. The goal is to provide a full picture to international or domestic companies, market participants, regulators and policy makers. Progress is assessed through a series of variables including the country's goals for 2030 and 2050, regulatory frameworks, energy security, sustainability, liberalization and through the use of detailed statistics.

On behalf of HAEE, I wish to express my sincere gratitude to our partner, National Bank of Greece, for its significant support and contribution towards the completion of this report. Namely, I would like to thank the CEO of NBG, Mr. Pavlos Mylonas, for endorsing the production of this report, Mr. Vassilis Karamouzis, with whom the idea was born, and of course Ms Argyro Banila and Mr. Harry Vovos for an excellent collaboration.

Foreword



Prof. Dr. Kostas Andriosopoulos
Project Coordinator

The COVID-19 pandemic has created at the beginning of 2020 the biggest crisis in generations, sending shock waves through health systems, economies, and energy systems around the world. Those developments put additional pressure for faster and more efficient implementation of the European Green Deal Investment Plan. This framework is anticipated to mobilize EU funding and create an enabling background to facilitate and stimulate the public and private investments needed for the transition to a climate-neutral, green, competitive, and circular economy. In light of this crisis, not only the need for a sustainable, green recovery has become even more pressing, but also the need to provide support to the most vulnerable regions. This is why the European Commission wants to reinforce the Just Transition Fund as part of its crisis response mechanism.

Nowadays, the Greek government has shown determination towards this direction, throughout a series of new measures and innovative legislations assisting the ongoing Energy Transition. This willingness is reflected in the revised and ambitious National Energy and Climate Plan that provides exact targets and strict deadlines. Until the end of 2030, the Plan projects new investments related to the Energy sector, which are estimated at around 40 billion euros, reflecting its very promising growth potential and significant contribution to the Greek economy. Special attention is paid towards Decarbonization, Renewable Energy Sources, Digitalization, Eco-mobility, and of course Energy Efficiency. Finally, the state's planned privatization of major energy assets, such as the two companies of the Public Gas Corporation, DEPA Infrastructure and DEPA Commercial respectively, the Hellenic Electricity Distribution Network Operator (HEDNO), and Hellenic Petroleum among others, are additional steps towards the further liberalization of the Greek energy market.

This 2nd version of the "Greek Energy Market Report" is based on the successful initial edition of 2019. The challenge of this year's edition was to adopt and include the severe impact of the pandemic on all aspects of our analysis, hence particular interest is paid in this direction. Besides, another novelty is that the Report includes insightful highlights and a short overview on each of the chapters under examination. Precisely, the chapters focus on the Country Profile in terms of basic economic and energy-related indicators, the Energy Transition and the projections of the National Energy and Climate Plan, the Hellenic Energy Exchange that is anticipated to officially operate under the Target Model in September 2020. Moreover, the Report reviews all the developments and statistics derived from the Electricity and Natural Gas markets, the increased penetration of Renewable Energy Sources, the importance of Oil & Refining for Greece, the recent developments in terms of Energy Efficiency and the projected Investments towards the Energy market. Above all, I hope that the "Greek Energy Market Report 2020" will act as a tool supporting the dialogue among market participants and policymakers in order to assist sustainable economic growth and increase social welfare.

Foreword



Mr. Paul Mylonas
CEO, National Bank of Greece

It is a pleasure to introduce for a second consecutive year the “Greek Energy Market Report”, an important sponsorship of National Bank of Greece (NBG). Via this publication we continue to support the country’s energy transformation.

The economic repercussions of Covid-19 are leaving a clear footprint on the global energy market. According to the International Energy Agency, energy demand in 2020 is expected to contract by 6 per cent - the largest drop in 70 years in percentage terms and the largest ever in absolute terms. Moreover, energy investment globally could fall by one-fifth this year, with many governments and private investors adopting a “wait-and-see” strategy.

In contrast to the times, Greece appears determined not to stray from its path to achieve the ambitious National Plan for Energy and the Climate – that is, to ensure that two-thirds of Greek electricity production come from renewable sources by 2028. Persisting with bold reforms, Greece is cutting project approval times and is streamlining spatial planning processes. In fact, investments in renewable energy sources, electricity interconnections and energy pipelines of the range of €10-12bn are projected to materialize over the next three years, which in turn could evolve into a vital recovery factor for the Greek economy in the post-covid era. Moreover, further momentum could be added through the implementation of the Recovery Plan for Europe, as key guidelines of the Green Deal is expected to be at the heart of this blueprint.

NBG considers itself a leader in Energy initiatives in Greece. With a total energy portfolio exceeding €2.5bn in utilized credit limits, NBG has a large and diverse portfolio across energy projects of the primary and the secondary market, supporting large as well as SME clients, both local as well as international. Moreover, NBG has channeled more than 1/3 of its funding towards renewable energy projects. Such involvement spans across traditional technologies covering Wind, Solar and Hydroelectric power, but we are also expanding towards innovative technologies such Hybrid (Solar, PV and storage), FSRU and CCGT. Having a clear corporate vision to preserve its leading ranking in Energy investments in Greece, NBG is committed to diversify and broaden further its Energy portfolio. We believe this publication plays an important role in informing the public about the specifics of the Greek energy sector and we remain available to actively explore cooperation opportunities in support of your organic expansion in the Energy sector.

Coordinator

Dr. Kostas Andriosopoulos holds the position of full Professor in Finance and Energy Economics at ESCP Business School, where he is the Executive Director of the Energy Management Centre. Dr Andriosopoulos is currently the Vice Chairman at the Public Gas Corporation of Greece (DEPA) and the Chairman of the Energy Committee of the American-Hellenic Chamber of Commerce. Kostas holds a PhD in Finance (Cass Business School, City University London), where he has been the recipient of the prestigious Alexander S. Onassis Public Benefit Foundation's scholarship. He also holds an MBA and MSc in Finance (Northeastern University, Boston, USA), and a bachelor's degree in Production Engineering and Management (Technical University of Crete, Greece). Kostas is the Founder and former Chairman of the Hellenic Association for Energy Economics.

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Contributors

The authors are grateful to **Konstantinos Dimitrainas** (Sector Head/ Large Corporate Banking Division - NBG), and **Eleftherios Soumpasis** (Relationship Manager/ Large Corporate Banking Division - NBG) for their significant contribution towards the completion of the "Greek Energy Market Report - 2020".

Executive Summary

Aligned with the initial version of 2019, the second edition of the “Greek Energy Market Report 2020” reviews all the developments related to the Greek energy sector, by providing the most recent available data. This year’s edition pays special focus on the externalities occurred due to the outbreak of the COVID-19 crisis. Moreover, a concrete analysis is provided for different sectors affecting the road towards the Energy Transition. In order to achieve that, the report provides both global and European energy trends and then assesses the role of Greece in terms of following or not those patterns.

Moreover, the report identifies all energy aspects that Greece is lagging behind, hampering the accomplishment of the country’s energy and climate targets. At the same time, it functions as a useful tool for those who want to have a solid view of the Greek energy market. Aiming to capture all the topics mentioned above, the Report consists of nine distinct chapters, covering the majority of the energy sector:

- Chapter 1 covers the **Country Profile** in Greece by analyzing and providing the key demographic, macroeconomic and energy statistics, accompanied by a careful examination of the pandemic effect on the Greek energy market.
- Chapter 2 provides an illustrative summary of the National Plan for Energy and Climate by pointing out the country’s energy related targets towards the **Energy Transition**.
- A robust examination of the formation and role of the newly established **Hellenic Energy Exchange** is provided in Chapter 3.
- The next chapter, focuses on the **Electricity** sector, highlighting various issues related to generation, capacities, prices, imports, exports and the important market of Eco mobility.
- Chapter 5 is dedicated to **Natural Gas** and explores all the developments that occurred in the market followed by the recent liberalization. Again, all the characteristics affecting supply, demand and import prices are carefully investigated in parallel with the projected plans for expansion of the market through new grid construction and use of LNG & CNG technologies.
- Chapter 6 focuses on the significant penetration of **Renewable Energy Sources** in Greece, by providing unique data, geographical and market analysis, and an update in regard to the recent regulatory framework.
- Chapter 7 covers **the Oil and Refining** market, which continues to play a crucial role for the country, and the recovery of the Greek economy.
- The concept of **Energy Efficiency** is extensively analyzed in Chapter 8, highlighting the progress of Greece towards achieving all its energy related goals in various sectors, such as transportation, industry and households.
- Finally, by linking global and European energy **Investment** trends with the current developments in Greece, Chapter 9 outlines the existing framework in terms of all ongoing and future energy investments, covering all aspects of the sector.

Data sources are robust and reliable since figures come from freely accessible databases such as, World Bank, OECD, Eurostat, IEA and Bloomberg, while statistics and data considering the Greek energy market were carefully collected from domestic sources such as, EnEx, ADMIE, DESFA, RAE and Elstat.

In summary, Greece is implementing comprehensive energy sector reforms to foster competitive energy markets, create opportunities for investors, support the transformation of the energy system and provide sustainable outcomes for the environment and Greek society. The ample availability of renewable energy potential combined with the ongoing large-scale infrastructure projects show that Greece will be an important player in the formulation of the European Union (EU) energy mix and will provide significant investment opportunities in all energy industries. Besides, located at the crossroads between East and West Greece is anticipated to play a key role in the South Balkans and East Mediterranean, as well.

Greece has currently the opportunity to leverage its economic recovery to accelerate emission reductions through energy efficiency and increased shares of Natural Gas and Renewable Energy Sources (RES) in the energy mix. A key part of this process is the development of a strong and coherent National Energy and Climate Plan for 2030 and beyond, as well as incorporating climate objectives into integrated energy planning. The country has seen an impressive increase in the share of Renewables in electricity generation, even over-achieving the targets set for solar PV. Better exploitation of its Renewable energy potential could result in a more balanced energy mix and contribute to increasing energy security.

In recent years, the Greek energy system is characterized by the decreasing consumption of conventional fuels based in large part on lignite which was strategically chosen for electricity production after the oil crisis of the 70s. Another basic characteristic of Greece is that the country is highly dependent on imports, which include Crude Oil, Oil Products and Natural Gas. In that context, over the last decade we observe an increasing penetration of Natural Gas into final consumption, although it still represents a small share of total consumption in Greece and falls short from the European average. On the other hand, following the introduction of the CO₂ tax, Natural Gas represents a significant share in electricity production, as percentage which is steadily growing over the years.

Furthermore, the energy sector in Greece has a higher contribution to gross value added and employment than in most EU countries and is poised to grow significantly in the coming years, driven by a number of significant factors. First and foremost, the required optimization of the energy mix, which consists of the reduction of fossil-fuel generated electricity and increased contribution from RES. This shift will be driven both by the revised EU policy of 35% renewable energy sources by 2030, and by the preference for cheaper and cleaner energy sources such as Natural Gas.

Next, the outbreak of the COVID-19 delayed the state's planned privatization of major energy assets, such as the Natural Gas distributor (DEPA), the Hellenic Electricity Distribution Network Operator (HEDNO) and the Hellenic Petroleum. National authorities seek to further liberalize the Electricity and Natural Gas markets and to separate the production and supply from transmission networks. The country aims to explore the potential to become a European gateway for Natural Gas, Electricity and Oil resources through mega-infrastructure projects such as, the TAP, IGB, EastMed gas pipelines, EuroAsia Interconnector or gas and oil exploration and production.

Another important aspect of the upcoming energy investments is directed towards energy efficiency and cost reduction driven by such technologies as smart metering, smartgrid and energy efficient buildings. Finally, major infrastructure development initiatives such as the interconnection of the Greek islands with the main electricity grid and the establishment of the Hellenic Energy Exchange in accordance with the electricity Target Model support the development of the Single Energy market in Europe.

Above all, Greece should continue pursuing the implementation of ambitious energy related policies, drawing on the evaluation of outcomes from past and current measures and on the lessons learned by other countries.

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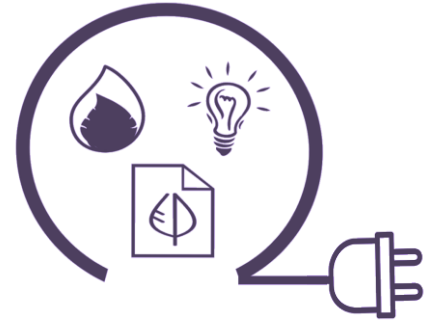
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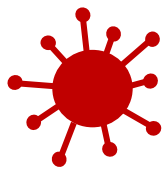


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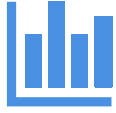
1. Country Profile



**Impact of
COVID-19**



Highlights



The **Greek economy** is forecasted to decrease by **10%** in **2020** and return to a **5.1%** growth in 2021

Greece's Economic Sentiment Indicator **dropped** by more than **20%** as an aftermath of the pandemic



Greek 10-year **bond yield dropped below 1%** for first time in February 2020 and remained in low levels during the COVID-19 crisis

The unemployment rate **fell to 15.5%** in the first quarter of 2020 but is expected to sharply **increase** as a consequence of a hampered touristic period



A single-hit scenario projects a Greek **debt to GDP** ratio of **188%** for 2020 and a double-hit scenario a ratio of **195%**

Energy market represented **3.7% of Greece GDP** for 2018



Gross energy consumption in Greece is projected to **drop by 11%** in 2020 due to COVID-19 impact



The increased penetration of **RES** continue in Greece representing **48%** of primary energy production for 2019 compared to the **40%** achieved in the previous year

Due to the lockdown effect, a significant annual drop of more than **20%** is anticipated for 2020 in terms of **total CO2 emissions**



Overview

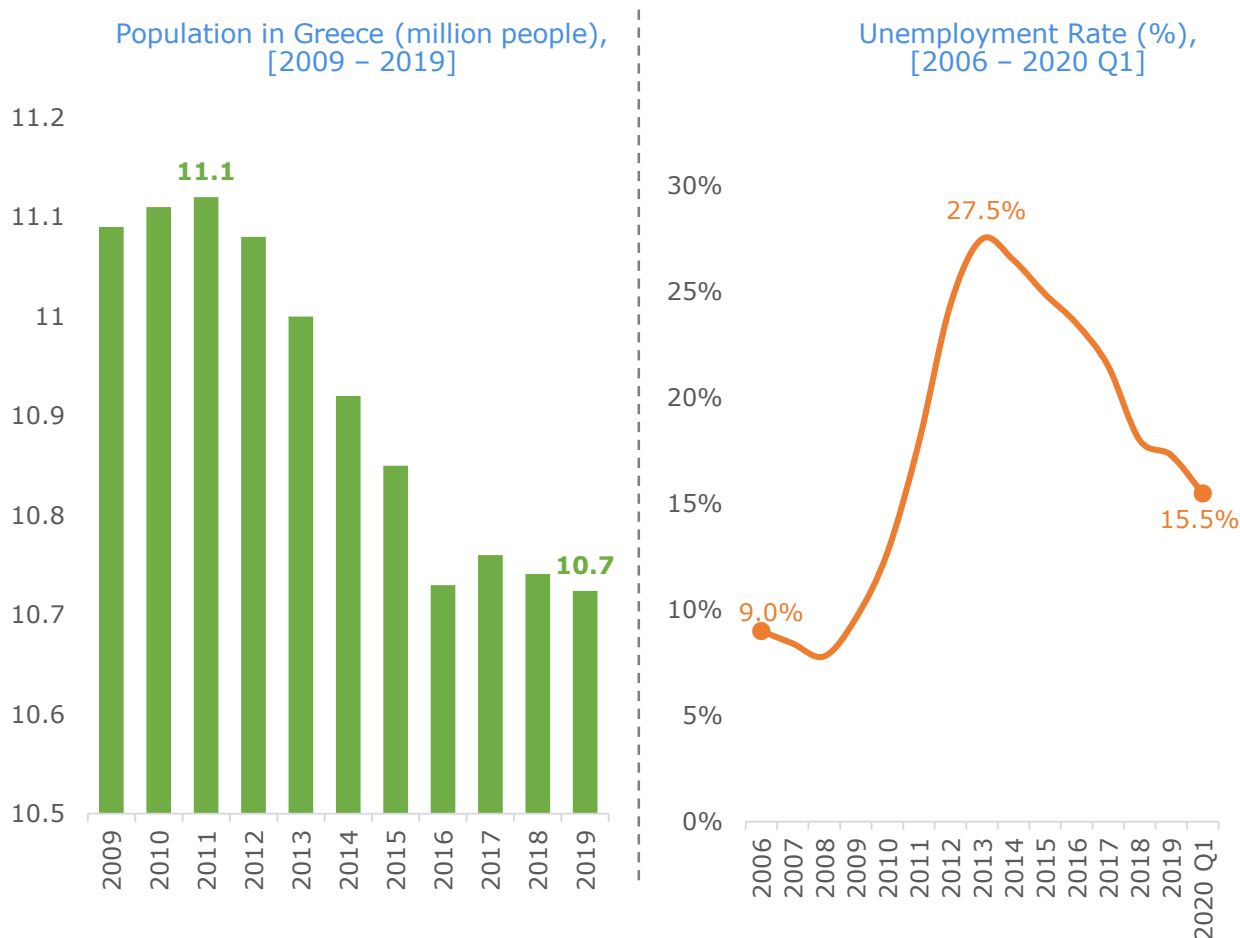
Greece has earned praises for tackling the Covid-19 threat to public health but now faces a challenge in containing the impact on the country's fragile economy. Even in the best-case scenario, the recession is likely to rival the worst years of the recent debt crisis. The biggest blow is expected in the tourism sector, which is the lifeblood of the Greek economy. The arrival of visitors from key destinations is the most important issue troubling national authorities. The total amount that could be a direct lost from the negative effect on tourism is projected to be 10 billion euros.

The crisis is also expected to trigger a big drop in domestic demand, which is another vital element of the economy. Private consumption accounts for around 70% of the Greek GDP. In March 2020, an estimated 2 million workers, just over half of Greece's entire workforce, received financial support. Household spending fell by 10% at the peak of the crisis in 2011, but there are fears of a bigger drop this year due to the unprecedented lockdown in the whole economy. A slowdown in investments is also likely, just as the government was targeting an increase of 13.4% in investment spending during 2020. The IMF predicted Greece would suffer the biggest recession of all European economies, with GDP contracting by 10% before a rebound of 5.1% in 2021. The European Commission also believes Greece's dependency on hospitality and its many small enterprises will lead to the economy taking a big hit. Brussels expects the Greek economy to contract by 9.7%, a drop that is way bigger compared to all the other European Union countries. Again, a strong rebound of 7.9 is expected in 2021.

The IMF expects Greek unemployment to rise by five points this year, reaching 22.3%. This translates into 1.1 million unemployed during a time when Greece had been hoping to see the jobless figure drop below 700,000 this year. The threat to jobs was evident in the March 2020 employment figures, when 41,903 people lost their jobs, compared to 2019 when this amount represented total jobs creation. The government has adopted a range of mitigating fiscal measures to provide businesses and workers with temporary help. The Finance Ministry believes these interventions could limit the recession around 8%. Whichever way this plays out, the COVID-19 crisis will impact Greece's economy. The contraction will likely be larger than in many of Greece's eurozone peers. In that context, the Greek economy will have to find a way to bounce back from this new setback.

Considering the case of the Greek energy market, gross energy consumption is anticipated to decrease by almost 11% in 2020 due to the COVID-19 outbreak, however a quick rebound is expected to take place over 2021. Aiming to depict the impact of this drop, the following analysis illustrates prior projections of the evolution of various energy variables before and after the COVID-19 crisis. In overall, consumption decline during 2020 is attributed to the drop of the general demand for Natural Gas, Oil and Coal. Current estimations project that after two years, the energy market will return to prior projections and be aligned with the targets of the National Plan for Energy and Climate.

Increased unemployment rate following the COVID-19 crisis is a crucial issue that needs to be tackled

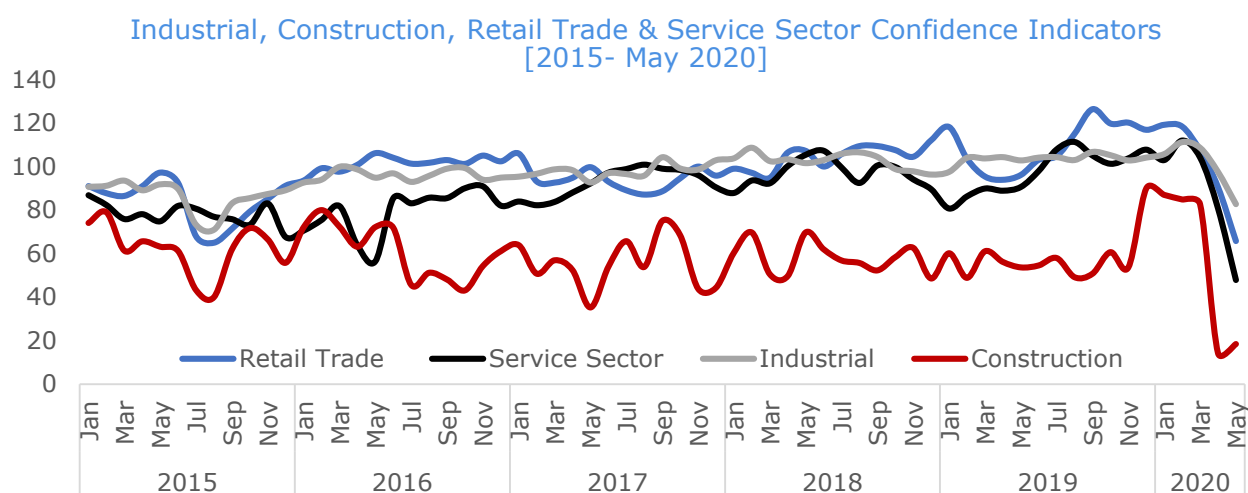
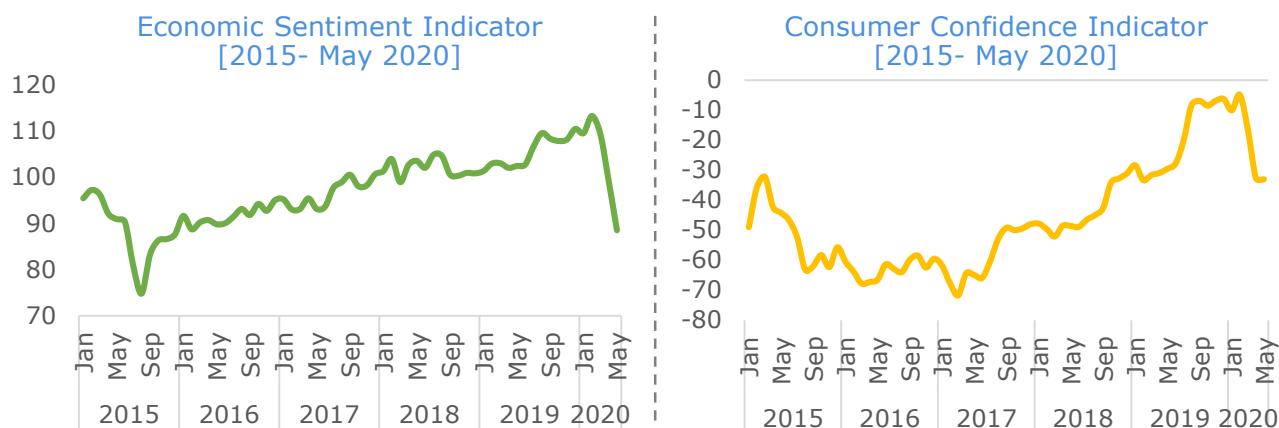


Source: Eurostat, Elstat, HAEE's analysis

Highlights

- Greece's population numbered 10.724.868 million people in 2019. The population's decline can be linked to the severe economic crisis and the brain drain that followed.
- An estimated 500.000 people moved abroad during the financial crisis, during which the Greek economy shrunk by a quarter and unemployment skyrocketed to 28%.
- Even though unemployment decreased to 15.5% during the first quarter of 2020, following the COVID-19 is anticipated to sharply increase during Q2 and Q3 of 2020 .
- Youth unemployment rate in Greece continues to be the highest in the developed countries, since it reached 32.4% in March 2020.
- The successful management of the coronavirus crisis by the Greek authorities during spring 2020, gives confidence for a quick drop of unemployment rate in 2021.

The analysis of various economic indicators depict the catastrophic effect of COVID-19 in terms of business confidence

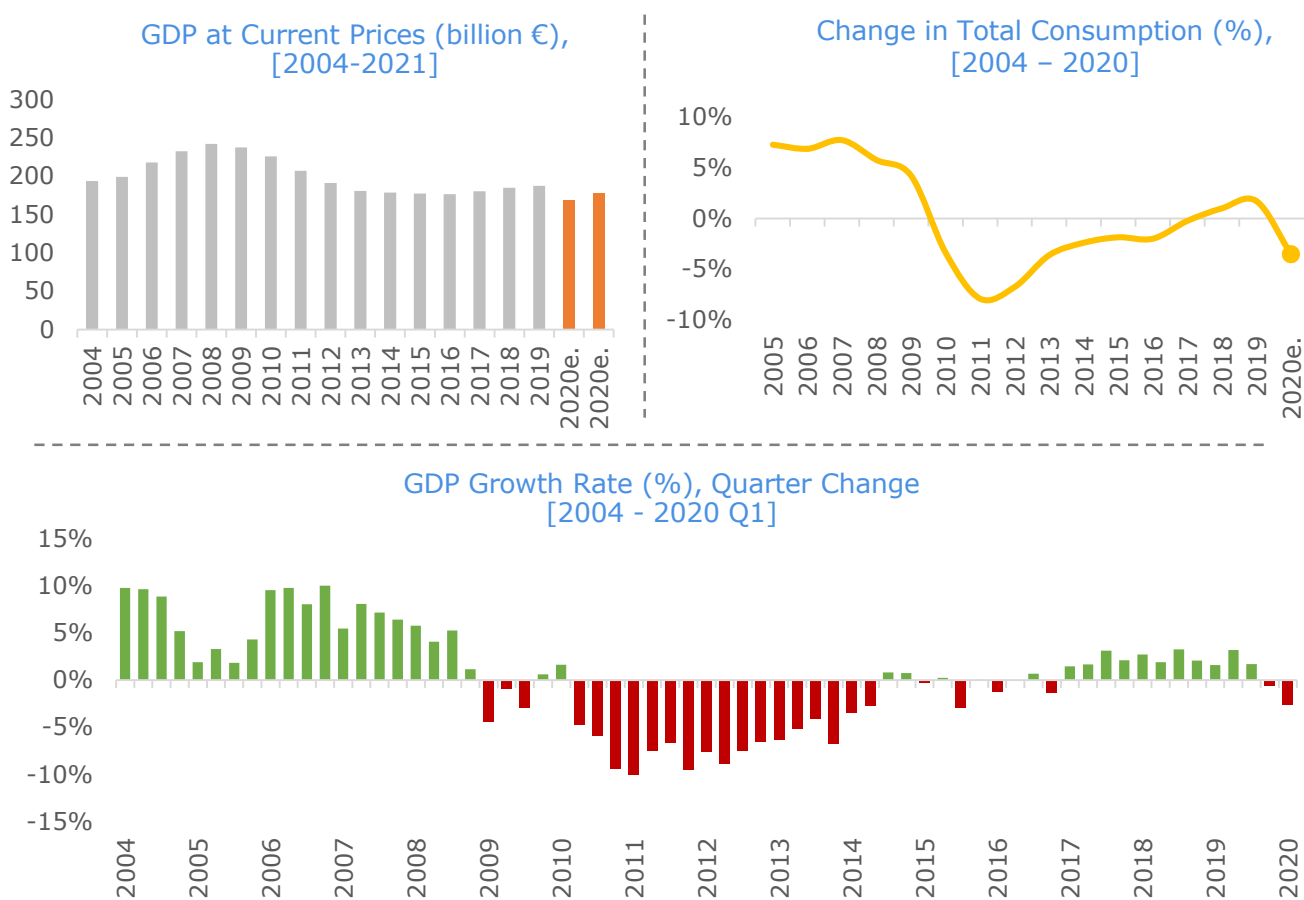


Highlights

Source: IOBE, HAEE's analysis

- Following a path of a steady upsurge, Economic Sentiment Indicator reached its maximum value in February 2020 and then collapsed to 2015 levels.
- In overall, Economic Sentiment Index in Greece sharply dropped as a result of the strict lockdown measures with the subsequent effects in all sectors.
- The same downward trend holds for the Consumer Confidence Indicator which is anticipated to return to prior levels by the end of 2020.
- Considering the Confidence Indicators of Retail Trade, Services, Industry and Construction we observe a sudden drop during the first months of 2020.
- Based on autumn 2019 figures, the Construction Confidence Indicator is anticipated to quickly recover which is apparent even by a small switch in May 2020.

Based on IMF's scenario, real GDP in Greece is forecasted to decrease by 10% in 2020 and return to a 5.1% growth in 2021

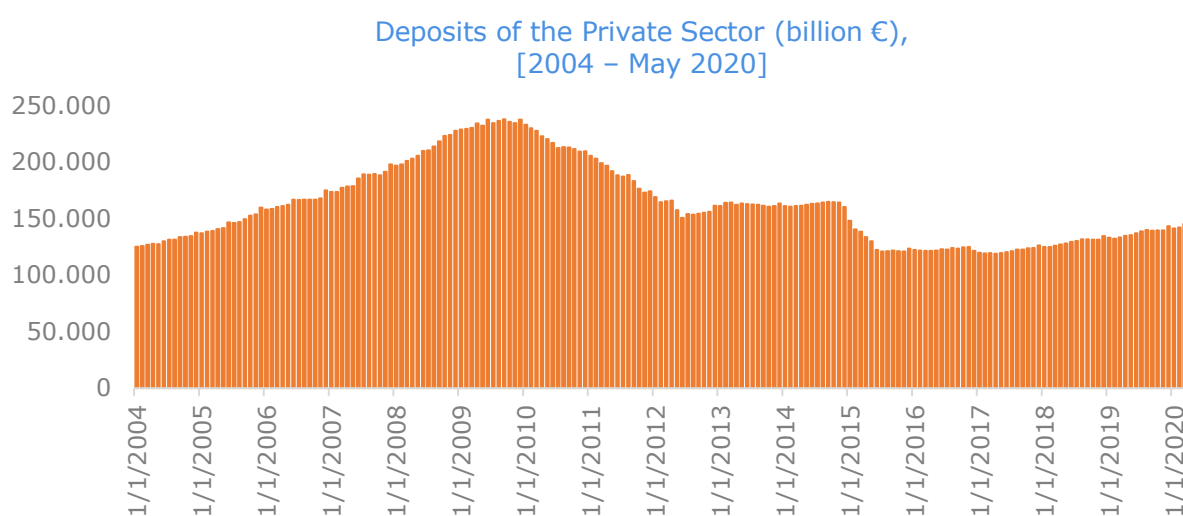
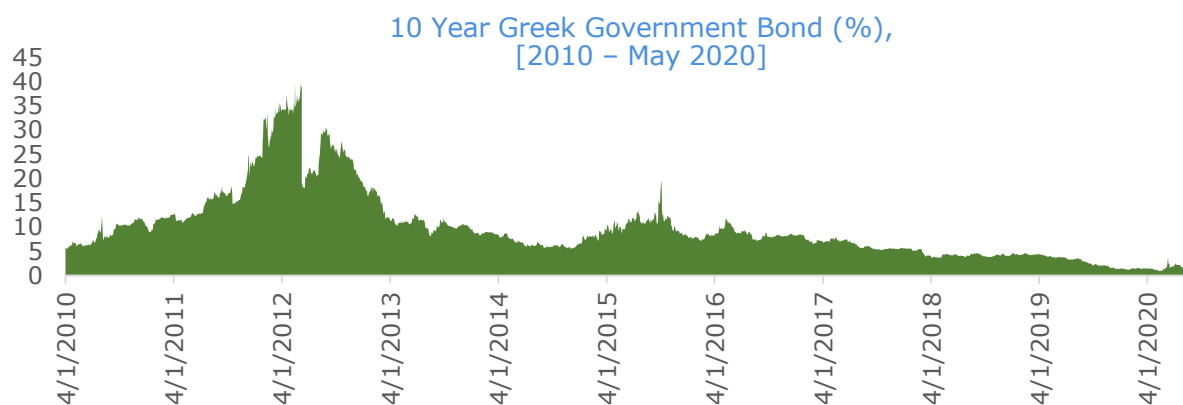


Source: Elstat, HAEE's analysis

Highlights

- Over the previous decade, the Greek economy suffered the longest recession of any advanced capitalist economy to date.
- Prior to COVID-19 crisis, the Greek economy was estimated to grow by 2.2% in 2020 and around 2% in 2021.
- For 2019, the GDP of Greece stood at 187 billion euros, however, estimations for 2020 project a drop to €168 bil. followed by an increase to €177 bil. in 2021.
- During the last quarter of 2019 and first quarter of 2020, the Greek economy suffered significant contraction after 11 quarters of achieving positive growth rates.
- Total consumption reached positive values for 2018 (1%) and 2019 (1.72%), however a sharp drop to -3.52% is anticipated for 2020.

Greece's 10-year government bond yield dropped below 1% in February of 2020, and remained at low levels during the COVID-19 crisis

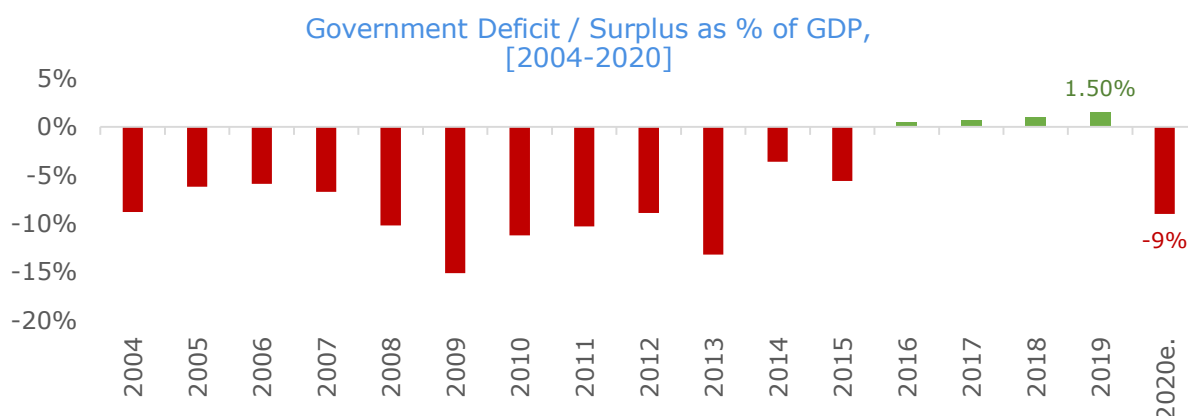
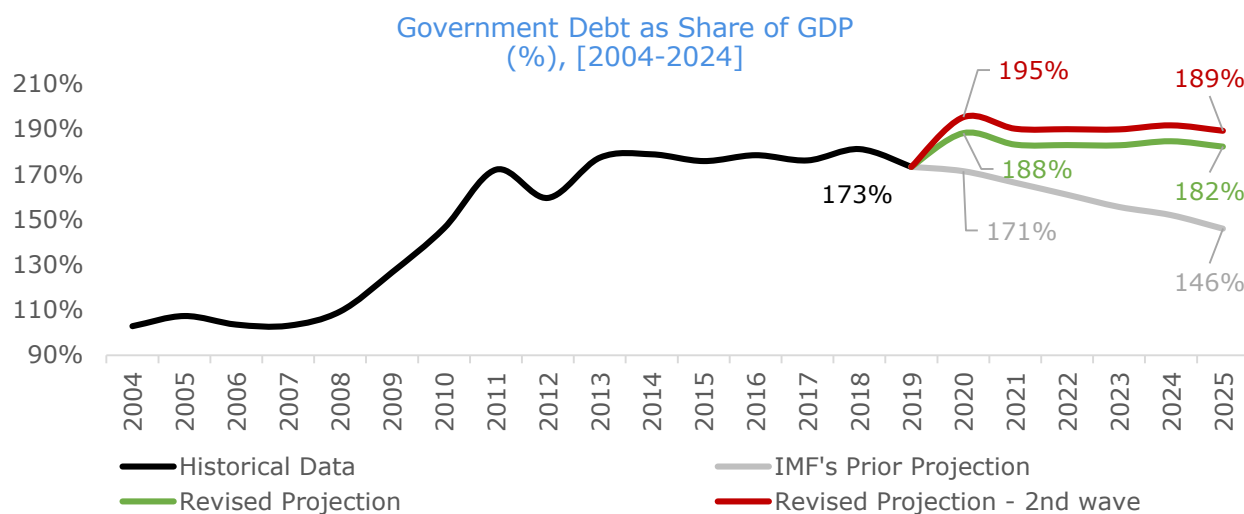


Source: Bloomberg, Bank of Greece

Highlights

- Supported by an improving economy and credit ratings upgrades, Greek debt has been one of the euro zone bond market's top performers in 2019.
- In January 2020, Fitch upgraded Greece's credit rating to 'BB' from 'BB-', due to the achievement of GDP growth and budget discipline.
- The trajectory was for further upgrades and a first investment-grade rating was about to follow, possibly by the end of 2021.
- The continuous increase in bank deposits and the improvement in liquidity allowed the elimination of capital controls as from the 1st of September 2019.
- However, the negative impact due to the Coronavirus put additional pressure on the fragile Greek economy that is mainly affected by the hard-hit sector of Tourism.

Unlike the positive outcome for public health, the Greek economy will emerge shaken form the COVID-19 crisis



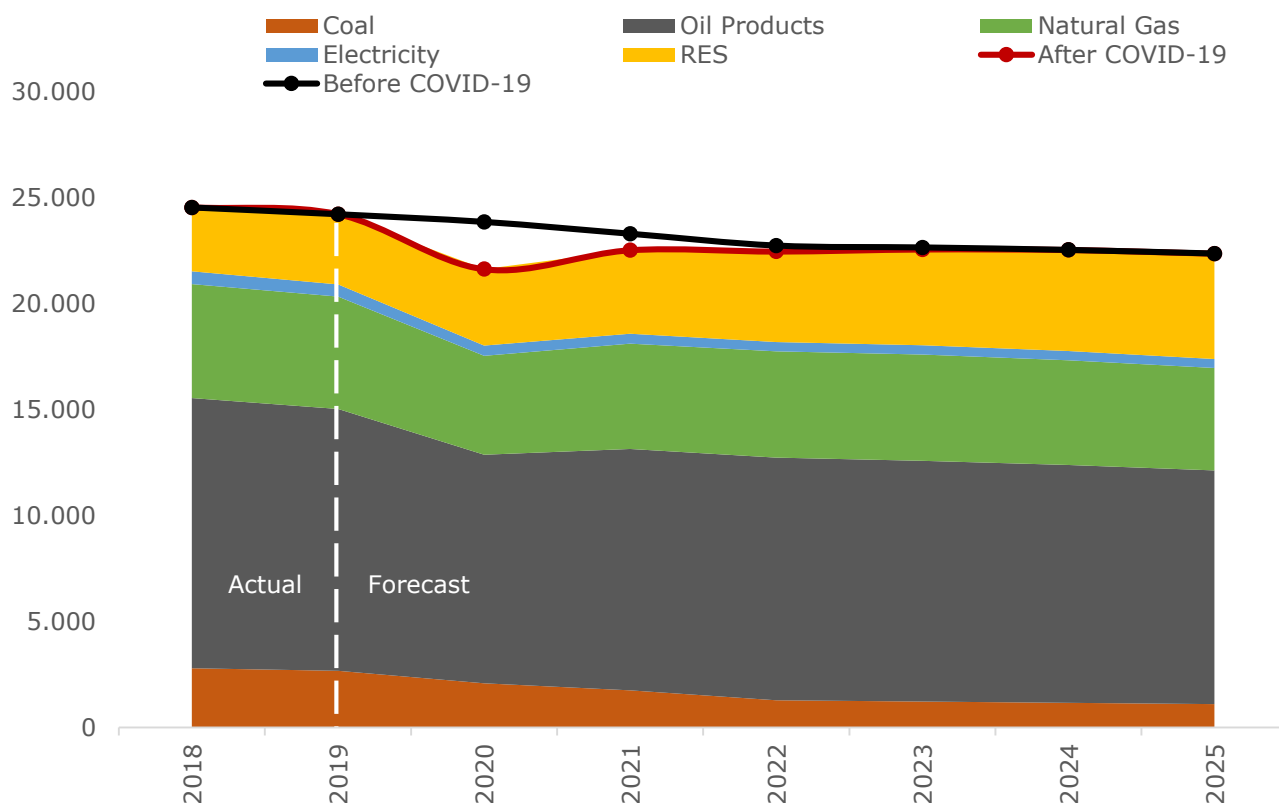
Highlights

Source: Eurostat, HAEE's analysis

- Greece continues to hold the Eurozone's highest ratio of public debt compared to its GDP, reaching 173% in 2019, followed by Italy at 132.2%.
- Greece recorded a Government Budget surplus equal to 1.5% of the country's Gross Domestic Product in 2019.
- However, even in the best case scenario, the recession is likely to rival the worst years of the recent debt crisis.
- The OECD warned that among the advanced and emerging economies, Greece was rated as the most vulnerable from the imposed shutdown.
- The prevailed optimism about the dropping projection of debt to GDP at 146% in 2025, quickly disappeared since revised estimations fluctuate around 185%.

Due to the COVID-19 outbreak, gross energy consumption in Greece is anticipated to decrease by almost 11% in 2020

Evolution of Gross Energy Consumption in Greece (ktoe), [2018-2025]



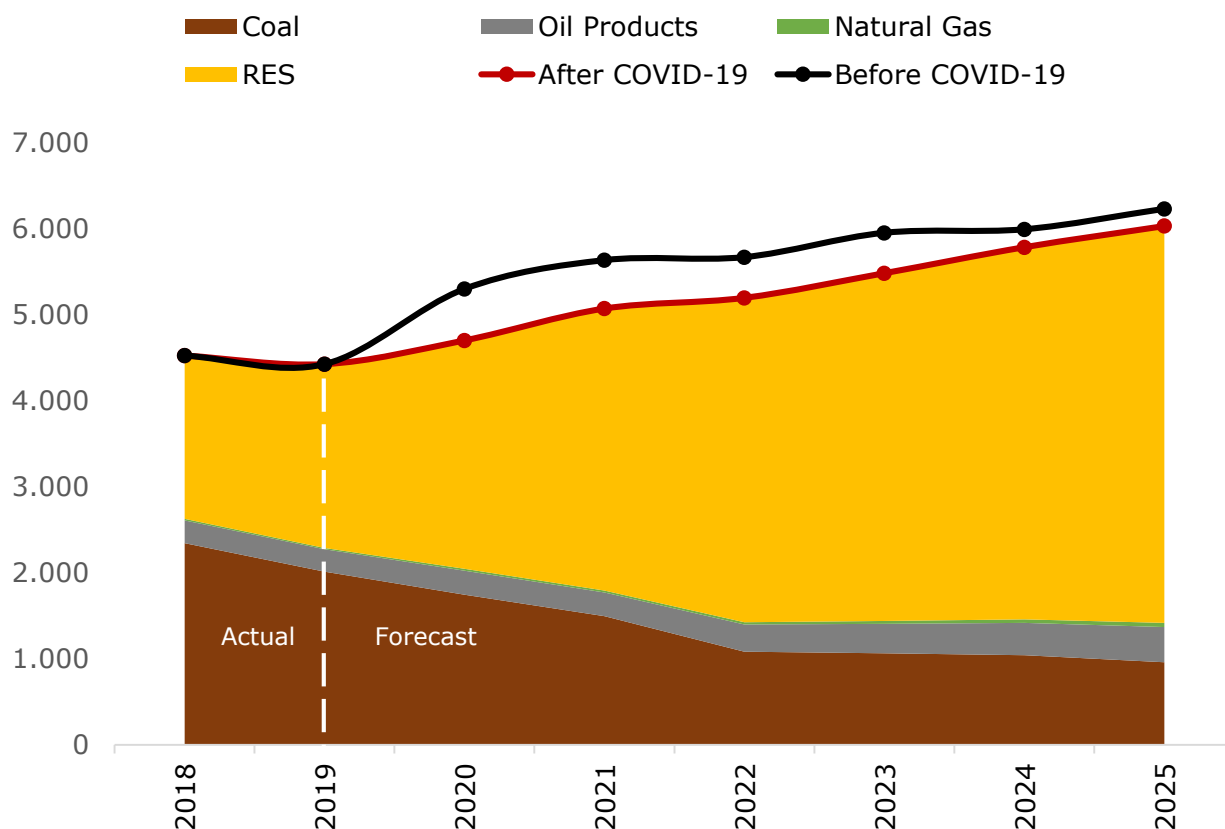
Source: HAEE's analysis

Highlights

- The sharp decline during 2020 is attributed to the drop of the overall demand mainly for natural gas, oil and coal.
- By 2022, energy consumption will return to prior projections, that is anticipated to follow a downward trend due to improvements achieved in energy efficiency.
- RES share are not strictly affected from to the pandemic and continue to gradually increase their penetration into the system.
- Coal consumption will drop to historical levels after the recent government's decision to phase-out all lignite units by 2023.
- In the long run, the gap between the two projections will gradually decrease, reaching at almost identical levels by 2022.

Primary energy production in Greece is anticipated to follow an upward trend mainly driver by the increased penetration of RES

Evolution of Primary Energy Production in Greece (ktoe), [2018-2025]

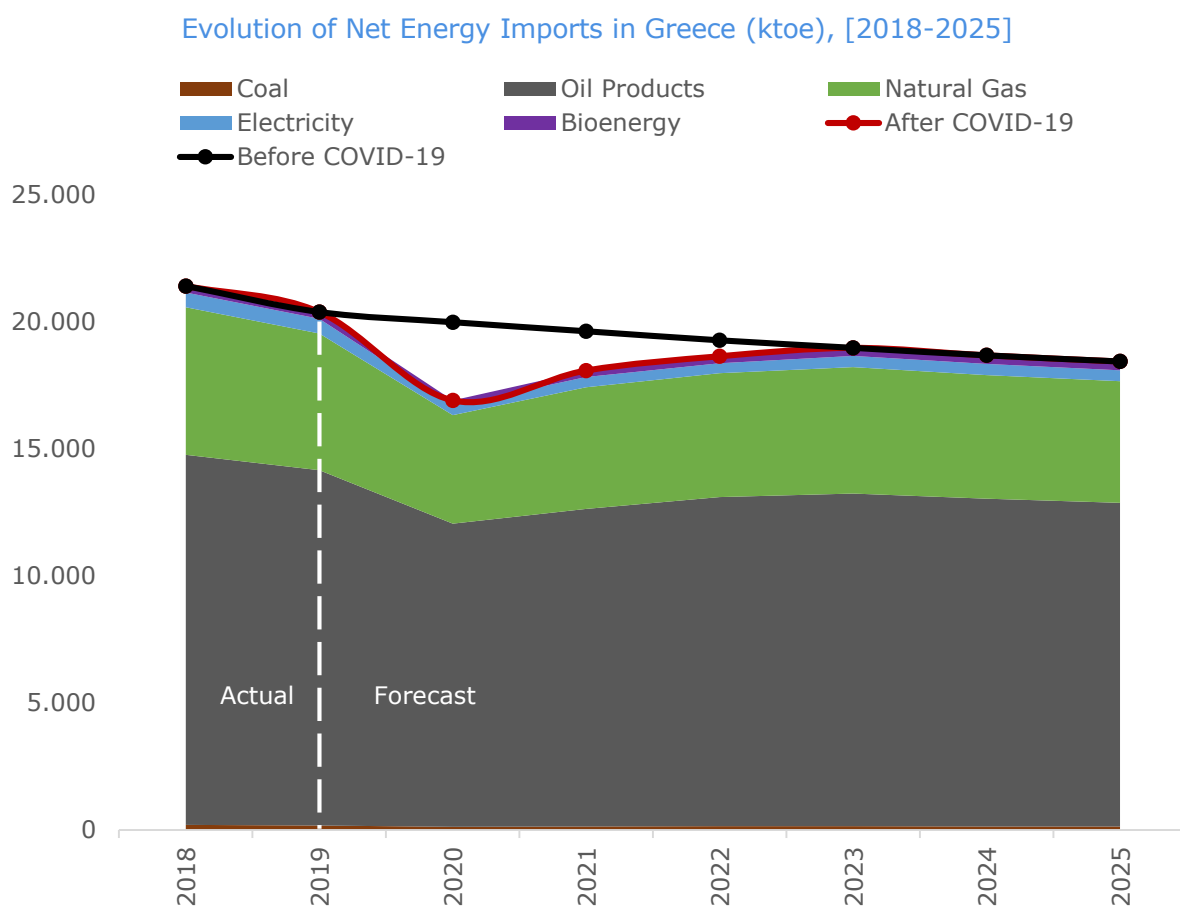


Source: HAEE's analysis

Highlights

- By the end of 2025, RES are anticipated to represent 75% of total energy produced in Greece, since both coal and oil will follow a downward trend.
- In order to achieve the increased penetration of RES, flexible and quick-response technologies such as Batteries and Demand Response are needed.
- For 2019, coal consumption represented 45% out of total domestic energy production while RES stood at 48% and oil at 6%.
- COVID-19 significantly affected the future projections of primary energy production in Greece since the updated estimations for 2020 are reduced by 20%.
- Based on the National Plan for Climate & Energy, oil production in Greece is anticipated to represent a steady share of 6% throughout the projected period.

Net energy imports, are projected to suffer a huge drop of almost 15% for 2020, attributed to the overall collapse of the domestic demand

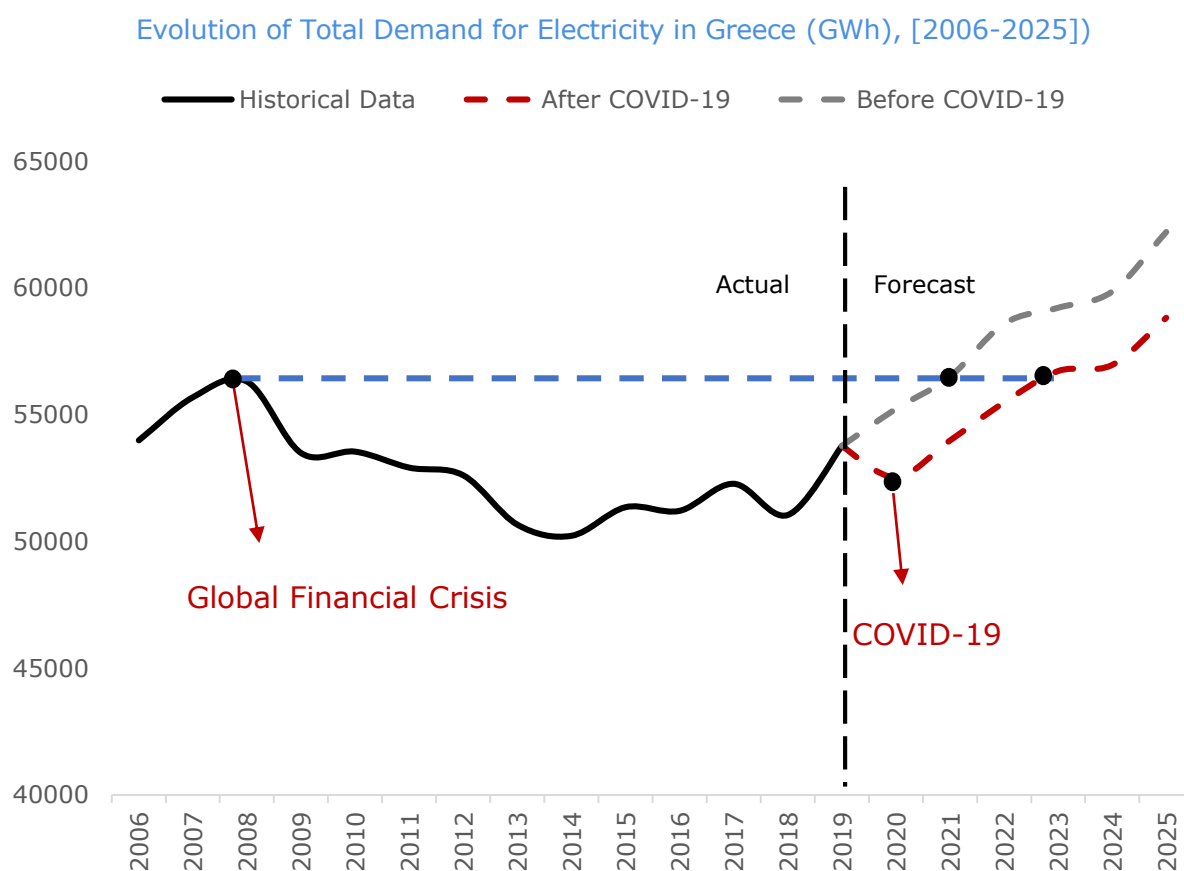


Source: HAEE's analysis

Highlights

- This short-term drop in energy imports will end by 2021, when energy related imports will increase by 6% reaching more than 18.000 ktoe.
- After 2021, a gradual increase of net energy imports is anticipated, reaching the prior estimations provided by the National Plan for Energy & Climate.
- Oil products currently represented 68% out of total energy imports and this share is expected to remain stable until 2025.
- Both projections of net energy imports follow a downward trend that is reduced by 14% in 2025 compared to 2018 levels.
- This tendency is driven by the increased penetration of RES into the system and the gradual replacement of the imported natural gas absorbed in electricity generation.

Following the COVID-19 crisis, the target for returning to 2008 levels in terms of electricity demand is projected for 2023 instead of 2021



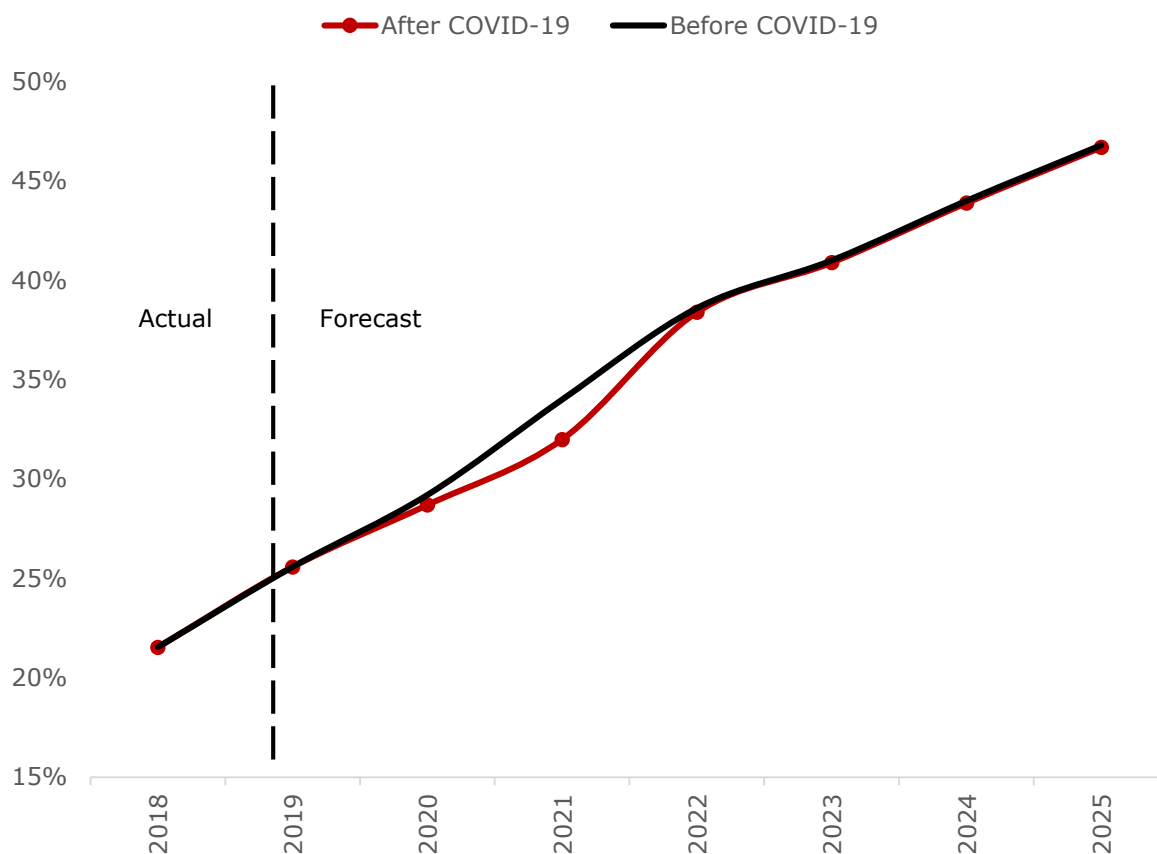
Source: HAEE's analysis

Highlights

- The economic crisis during the last decade, heavily affected the total demand for electricity which, compared to 2008 levels, dropped by almost 11% in 2014.
- The projections based on the increased demand for electricity during 2019, forecasted that by 2021 the demand would equal 56.5000 GWh.
- However, following the outbreak of COVID-19, this scenario was revised for 2023, meaning that the expected growth in electricity demand will fall short by 2 years.
- This negative effect from the electricity market, partially reflects the adverse outcome that is anticipated in the aggregate consumption in Greece.
- This U-shaped return, could be easily modified to a V-shaped return or even an L-shaped based on the resurgence of the COVID-19 crisis.

The share of RES in gross electricity consumption will be slightly affected by the impact of the pandemic reaching 46% in 2025

RES share in Gross Electricity Consumption in Greece (%), [2018-2025]



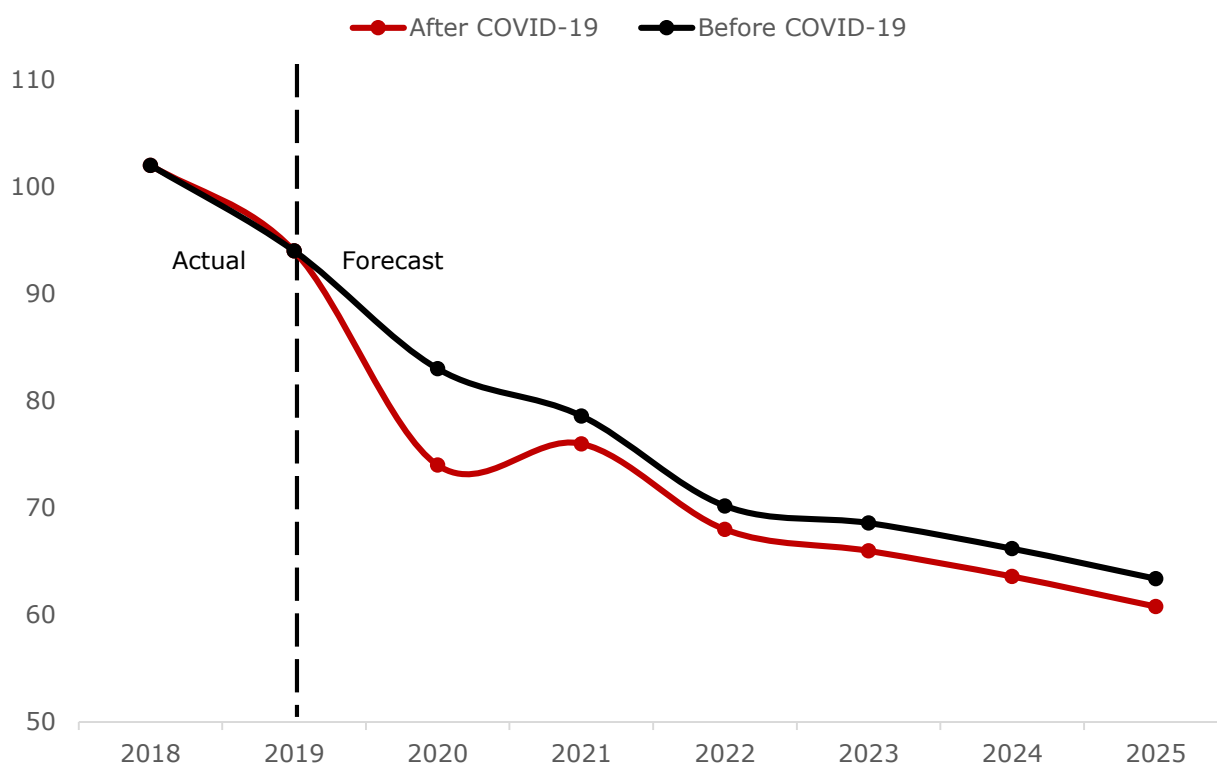
Source: HAEE's analysis

Highlights

- This small drop of 2% compared to previous estimations is attributed to minor delays related to the construction and financing of new RES projects.
- Since investments in RES are expected to be supported at national level during the COVID-19 crisis, the trajectory returns back to the path of steady growth quite soon.
- Under development RES projects who secured Tariffs through a tender face strict connection deadlines, with the risk of bank guarantees forfeiture.
- Supported mainly by the European Commission, national authorities need to guarantee flexibility for the development and completion of renewable projects.
- The European Green Deal aims to completely decarbonize the energy sector over the upcoming decades by moving to clean and circular economy.

On the positive side of the current crisis, the total amount of CO2 emissions in Greece is expected to sharply decrease in 2020

Evolution of Total CO2 Emissions in Greece (MtCO2), [2018-2025]



Source: HAEE's analysis

Highlights

- Tackling air pollution will not just save millions of lives but brings multiple benefits to issues including climate change, children's development, and equity across the globe.
- Air pollution is a global problem but the burden on health is disproportionately higher in poorer countries and has a pronounced impact on economic progress.
- A significant drop in air pollution has been observed in Athens since the government took strict precautionary measures to counter the spread of the Coronavirus.
- Based on a comparison of the average daily values, in March 2020 there was an annual decrease of 11.4 % in nitrogen dioxide pollutants.
- Member-states are required under European Union directives to draw up and implement programs to limit their annual emissions.

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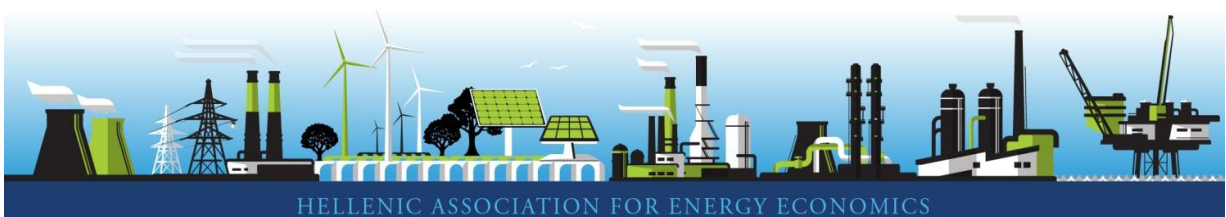
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Greek Energy Market

Report 2020



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