



26th National Energy Conference

“Energy & Development 2022”

Hotel Caravel, 22-23 November 2022

Conference Overview and Conclusions

Athens, December 2022

Once again, the Institute of Energy for Southeast Europe (IENE) held its annual conference, the 26th National Conference “Energy & Development”, which was held at the Divani Caravel Hotel, in Athens, on November 22-23, 2022. The special theme of this year’s conference was **“Europe Ahead of Critical Energy Choices”**, where special emphasis was given to the current energy crisis and Europe’s effort to decouple from Russian energy while trying to keep in focus its NetZero goals.

The 26th “Energy & Development” took place at a particularly critical time, as natural gas flows from Russia to Europe have fallen by more than 80% since 2021, energy prices are caught in a relentless upward spiral, threatening to trigger uncontrolled inflation and to halt growth in the region's economies that were recovering from the effects of the Covid-19 pandemic.

The National Energy Conference, which was initially organised by IENE’s Chairman Mr. Costis Stambolis in 1996, long before the foundation of the Institute, has become a flagship event, with the participation of senior government officials, acclaimed experts and well-known business leaders from Greece and abroad who contribute each year to a fruitful discussion on the latest energy, economic and political developments at global, European and SE European level.

With more than 80 speakers and moderators and 250 delegates in all attending this major IENE event, the 26th “Energy & Development” Conference managed to attract strong interest from governments, companies and top experts from Greece and from several countries in the broader region. The Conference also received wide press coverage by local and international media.

The presence of Greece’s Minister of Environment and Energy, Mr. Kostas Skrekas, the Secretary General for Energy and Ministerial Resources at the Environment and Energy Ministry, Ms. Alexandra Sdoukou and Sokratis Famellos, on behalf of the Parliamentary Opposition, analysed the latest political and energy developments in the country. Also, there was the participation and representation of all the major companies and organizations in the country's energy sector, i.e. the main energy market players, who presented a global overview of the energy situation and analyzed thoroughly both the developments and challenges that appear in the energy sector.

The “Energy & Development 2022” Conference offered a unique opportunity to approach energy, economy, environment, and energy sustainability issues on an holistic basis but also through a discerning lens. Issues, such as energy infrastructure and the strategic role of natural gas and LNG in the global and peripheral energy supply along with the obstacles currently faced in the electricity and natural gas markets in SE Europe, were thoroughly revisited. New technologies and their

development for energy needs but most importantly the strategies which should be followed to ensure Greece's entry to next energy revolution were discussed at length by experts.

In addition, the physical presence and online participation of a large number of invited speakers from France, Brussels (DG ENER), the Netherlands, the UK, Serbia and Israel, among others, facilitated the understanding of the current developments at global, European and regional level.

The 26th "Energy & Development" Conference was concluded with the award of the IENE life achievement prizes "Prometheus 2022" to three individuals who each excelled in specific fields. In particular, the "Prometheus" prizes were awarded to Dr. Vasilis Belesiotis for his valuable contribution in the certification and promotion of solar thermal systems, to Mr. Michalis Filippou for his significant contribution to the development of the electricity market in Greece and to Dr. Stelios Loumakis for his overall contribution to the promotion of photovoltaic applications in Greece.

1st Ministerial Energy Panel Discussion

The Conference kicked off with a ministerial panel discussion, which was held under the auspices of Greece's Environment and Energy Ministry and was chaired by the Minister Mr. Kostas Skrekas, and proved to be one of the highlights of the conference.

The ministers, who participated in the panel discussion during the IENE Conference, which was expertly moderated by prominent journalist and Foreign Press Correspondent, Mr. John Psaropoulos, included the Minister of Infrastructure and Energy of Albania, Belinda Balluku, the Minister of Energy of Bulgaria, Rosen Hristov, the Minister of Energy of Romania, Virgil-Daniel Popescu, the Minister of Economy of Kosovo, Artane Rizvanolli and the Minister of Energy of Greece Mr. Kostas Skrekas.

Issues of coordinated actions and solidarity to jointly deal with the energy crisis and the deepening of energy cooperation between their countries were discussed at length during the ministerial roundtable discussion. The prospects for energy supply adequacy and the promotion of green energy were also topics in the discussions of the Ministers.

Global Energy Trends

Another highlight of the Conference was the presentation of the IEA's World Energy Outlook 2022, which was expertly presented by Mr. Apostolos Petropoulos, an energy modeler from the IEA team in Paris.

The main conclusions of the IEA's World Energy Outlook 2022 can be summarized as follows:

1. Energy price inflation is not responsible for the energy transition from fossil fuels to low or zero carbon energy sources.
2. Many countries are promoting their energy independence away from Russia.
3. Policies in place lead to further development of clean energy, while countries, driven by the energy crisis, make progress amid temporary gains for fossil fuels, such as coal and natural gas.
4. A peak in fossil fuel demand and its use is in sight.
5. Energy efficiency and clean fuels are promoted.
6. Fast energy transition will depend on even higher investments.
7. A deterioration of the energy poverty issue is observed.

In his introductory statement, IENE's Chairman and Executive Director Mr. Costis Stambolis outlined the Institute's contribution in helping shape the region's energy policies, while he stressed the Institute's role in forging a closer and more effective regional cooperation.

"Over the years, IENE has managed to establish a substantial regional presence with increased responsibilities towards governments and regional institutions but at the same time, enabling it to adopt a more critical and deeper view on energy issues in a wider and more realistic environment. That enabled IENE to play a key role in the policymaking and the strengthening of bilateral and regional cooperation," Mr. Stambolis said.

IENE's Chairman also pointed out the imperative need for closer cooperation and coordination between the countries and especially at SEE European and European Union level. "The current energy crisis is probably worse and more powerful in intensity and long-term effects than the great oil crisis of 1973, because it burst out due to the lack of energy supply in Europe and probably in the rest of the world", Mr. Stambolis observed. The Chairman of IENE strongly criticized Europe's political leaders because, as he said, "they systematically concealed from the citizens of their countries the seriousness and importance of energy security, which until the beginning of this century was a key pillar together with the economy and the environment. However, the need to strengthen energy security now returns as the first priority in policy making", Mr. Stambolis underlined.

This consists primarily of ensuring a sufficient and continuous flow of natural gas and oil, as well as the achievement of reasonable prices, without which the economy cannot operate competitively. "With natural gas emerging as a strategic fuel, since now a large share of electricity generation depends on it. With the high energy

dependence of most countries in SE Europe - we are talking about an average of 50% plus and with some countries reaching 80% and 95% - it is obvious that reducing net energy imports must be a constant goal in the coming years", he added.

Furthermore, IENE's Chairman expressed the view that the current difficult energy situation, which is complicated by the commitment of the global community to drastically reduce CO2 emissions in the coming years, presents an opportunity for EU policy makers to reconfigure Europe's ambitious environmental goals, since it is clear that the lack of adequate energy supply cannot be met by RES and energy efficiency improvement alone. He also explained that the RES penetration in the global energy mix remains very small, despite the \$3 trillion related investments over the last 12-15 years, and this, as he pointed out, requires even more effort in research and innovation, construction and regulatory level, as there is need for further development of networks, combined with storage infrastructure.

For IENE's Chairman, the big challenge in energy policy and energy planning from now on is the search for an energy balance, i.e. a balance between the satisfaction of basic energy needs and the reduction of GHG emissions, which in the coming years will acquire greater significance.

Electricity

The President of Regulatory Authority for Energy (RAE), Dr. Athanasios Dagoumas, spoke of the short- and long-term consequences of the energy crisis on the overall policy making and referred to the state's interventions to shield consumers from hiking electricity prices. RAE's President then unveiled his proposals for the containment of energy crisis to be presented to the EU's Agency for the Cooperation of Energy Regulators (ACER). "We will try to convince our European partners for the integrity of our proposals and will organise a special information seminar for this reason," he said.

The President of RAE also referred to the need for long-term planning in introducing viable energy and climate policies as well as the prioritization of energy efficiency measures, as main pillars to limit costs and reduce CO2 emissions. He also argued that Greece could become a net energy exporter over the next decade, as it gradually changes its energy import profile. In addition, he spoke about investments in new natural gas infrastructure and argued that the country is the most reliable partner in the SE European region. He underlined the importance of energy storage, the need for more installed capacity from RES, and the new licensing framework, issues that RAE has already put in public consultation.

The Director of Market Operations at Hellenic Energy Exchange (HEX) Group, Mr. Christoforos Zoumas, defended the Day-Ahead Schedule for the containment of the rise in electricity prices. He also elaborated on the new 15-minute contracts in the recently introduced Day-Ahead Market in Greece. The representatives from Elpedison and Protergia, Mr. Andreas Petropouleas and Mr. John Giannakopoulos respectively, vehemently opposed the imposition of windfall tax, while the President of the Hellenic Union of Industrial Consumers of Energy (UNICEN), Mr. Antonis Kontoleon, argued that the cap on bilateral contracts (PPAs) practically annulled them.

Natural Gas

Russia's invasion of Ukraine led to high prices in natural gas which in turn impacted electricity prices. This specific topic was at the epicenter of the Conference, where supportive policies that European governments have already taken, mainly in the form of subsidies, were discussed in detail. Parallel to that, strategic plans have been drawn up by each country for the decoupling of Russian energy imports.

In the case of Greece, a very ambitious and front-loading program to develop new natural gas infrastructure, in addition to the existing one in Revithoussa, is being implemented, with the aim of increasing the country's energy security, with special focus on a series of FSRUs, namely the Alexandroupolis FSRU (Gastrade), Agioi Theodoroi (Motor Oil, known as Dioryga Gas FSRU) and Thessaloniki FSRU (Elpedison). Along with LNG regasification projects, gas interconnectors play key role, with the Interconnector Greece-Bulgaria (IGB), which began its commercial operation in October 2022, being a prime example. Also, the Interconnector Greece-North of Macedonia (IGNM), which is still in the planning phase, is yet another project of regional significance. Currently, the upgraded storage capacity of the Revithoussa LNG terminal, due to the addition of the new floating storage unit (FSU), which has been in operation since last July, is expected to increase the LNG capacity to over 20 billion cubic meters by 2024.

Hydrocarbon Exploration

The session on hydrocarbons and the need for accelerated exploration efforts attracted strong interest. Ms. Tereza Fokianou, President and CEO of Flow Energy and Member of the Board of Directors and Chairperson of IENE's Upstream Committee, moderated the session. Dr. Aristophanis Stefatos, CEO of Hellenic Hydrocarbon and Energy Resources Management Company (HEREMA), and Mr. Giannis Grigoriou, VP Central Eastern Europe & Scout Group and IENE Partner, took the floor.

Experts spoke of the urgent need for the undertaking of extensive seismic and exploration surveys concerning large onshore and offshore gas fields in Greece, which could cover the country's needs for the next 30-40 years. "We owe to ourselves to find out if the estimates for our country's mineral wealth are true," Dr. Stefatos said, while Mr. Grigoriou revealed that Greece "hides" 70-90 tcf of natural gas, which correspond some 12-15.5 billion barrels. For her part, Ms. Fokianou, said that the cost of hydrocarbon research and exploration burdens solely the investor and not the state's budget at all.

Renewables & Energy Efficiency

The President and CEO of Renewable Energy Sources Operator & Guarantees of Origin (DAPEEP), Mr. Yiannis Yiarentis, highlighted the key role of DAPEEP in the implementation of the government's energy income policy and emphasized that the Special Account of RES is on track for surpluses, despite the fluctuations recorded recently due to the energy crisis. In particular, DAPEEP estimates a surplus of €200 million until the end of 2022, predicting even higher performance next year.

In addition, the Special Account of RES, as one of the main sources of revenue of the Energy Transition Fund (ETF) that finances the subsidies on electricity bills, has not so far had a negative effect on the financial situation of the account. Based on available data, the Special Account of RES has contributed a total of €1.1 billion to ETF during the time that the relevant price cap mechanism has been operating in the wholesale electricity market.

In terms of green installed capacity, Greece currently has 10 GW and it is "a matter of days to surpass this floor", as Mr. Yiarentis said. He also estimated that the installed RES capacity in the country will reach 10.9 GW in the first half of 2023 to continue incrementally to 12 GW by the end of 2023.

Finally, Mr. Yiarentis announced the creation of a platform on the DAPEEP's website, where only the required supporting documents will be submitted electronically by the interested RES producers for the signing of the contracts, without the need to submit the entire folder and a pile of documents.

It was a common observation among the speakers in the RES session that the large penetration of RES will require a wider and more interconnected grid and the ability to store electricity. Greece, due to its location, does not enjoy the electricity interconnections of the countries of Central Europe, in order to mitigate fluctuations and production-demand mismatches, especially due to RES, while the electricity interconnections with the systems of the northern neighbors cannot ensure easy access to Central European markets for large amounts of power.

Therefore, the ambitious deployment of RES requires the transformation and expansion of the networks with innovative technologies, assuming the parallel development of the economy and an increase in the domestic electricity demand. Given, in fact, that investments in RES are characterized by capital intensity, bank borrowing on favourable terms should be made possible since under recessionary conditions it is burdensome and high risk for producers.

In addition, important parameters for the further development of RES in Greece were discussed, such as their spatial planning on land and sea and the simplification of licensing procedures, while particular emphasis should be placed in the coming years on the utilization of solar heat.

Another conclusion was that over the last 4-5 years a true “green” revolution has been taking place in Greece, even in the midst of the twin crisis of the coronavirus pandemic and the high energy prices of the last two years. Within this difficult energy environment, Greece is currently the sixth country in Europe with the highest electricity production from RES. Furthermore, it is in second place worldwide in the index of attractiveness of RES investments, in terms of GDP, according to the latest data from Ernst & Young. Also, Greece ranks 16th in the general index of attractiveness of RES investments, among the 40 largest economies of the world, and in 8th place in terms of the contribution of RES to the energy mix.

As stated by the Secretary General for Energy and Ministerial Resources at the Environment and Energy Ministry, Mrs. Sdoukou, the significant progress of RES in Greece in recent years is due to the promotion of a series of legislative interventions, which favor new investments but, more importantly, simplify and speed up the licensing procedures for new projects. Also, special reference was made on the first law establishing the framework for the development of offshore wind farms, with the aim of having developed at least 2 GW of wind capacity by 2030.

Referring to the government’s energy efficiency initiatives, the Secretary General explained their paramount importance for the country’s energy transition. She also mentioned that the guide for “Photovoltaics on the Roof” program is expected to be published soon, while she added that the program will also simplify the procedures for issuing the terms of connection to the network in order to reduce the waiting time of beneficiary households. Also, the “Save-Renovate for Youth” program is expected to be announced at the end of 2022, as the relevant consultation has been completed. Finally, significant funds are anticipated to be directed to actions for energy upgrading of homes and buildings.

Apart from energy efficiency in buildings, there is energy efficiency in transportation and industry. The specific issues were discussed in detail in the relevant session and

highlighted the current situation, but also the prospects for their further development.

New Energy Technologies

One of the most interesting sessions of the Conference was the one which discussed the prospects for the development of new energy technologies, such as hydrogen, biomethane and carbon capture, utilization and storage (CCUS) technology, particularly in the case of Greece. More specifically, Dr. Theodore Terzopoulos, Coordinating Director of Strategy & Corporate Affairs at DEDA and President of the Natural Gas Scientific Committee of IENE, focused on the 5 actions that must be undertaken and implemented at the same time if Greece does not want to be late in the 5th energy revolution (Energy 5G, as it is known). These actions concern smart grids and smart meters, the integration of interoperability of energy systems, the digitalization of energy systems and the production and use of hydrogen, biomass and biomethane.

In fact, he added that 50 biogas units are already operating in Greece today, producing 125 million cubic meters of biogas purely for electricity production, with an efficiency of around 40%. As he said, with a small investment these units can be converted into biomethane units with an efficiency of more than 90%.

In addition, Mr. Konstantinos Papaloukas, Coordinator of National Hydrogen Committee at the Ministry of Energy, characterized hydrogen as the “Swiss jack knife” of the green transition, while Dr. Nikolas Koukouzas, Director of Research at the National Center for Research & Technology (CERTH), referred to the particularly important solutions offered by CCUS technologies.

Conclusions

The energy sector is fast changing in Europe and Greece, while the transition to the new energy environment is taking place amid high gas and electricity prices, which are largely due to Russia’s invasion of Ukraine and the lack of adequate gas supplies. It is the transition towards less polluting and smart energy with widespread use of clean technologies and the parallel entry of digital technology. New ideas and innovative technologies are a decisive driver and guide, while digital technology spreads in all activities and everyday life. Energy is becoming a complex sector and is characterized by high investments and critical economic, environmental, social and geopolitical parameters, innovation, research and market reforms, with the need of an adaptable and appropriate regulatory framework.

Greece, with the mainland, the islands and the sea that surrounds it, offers great energy challenges, which must be addressed with prudence and technical maturity,

with appropriate policy and planning for development, maximizing social and economic benefits. The country's high dependence on energy imports (hydrocarbons and electricity) has significant negative effects on the economy and energy security, so the main goals of strategic planning should be the reduction of energy dependence and the advancement of a competitive energy sector, taking into account environmental requirements.

Energy security, the improvement of energy efficiency, the wide utilization of RES and the operation of a competitive market emerge as key policy axes. A major transformation is taking place in the electricity sector with the entry of RES. Rapidly evolving technologies in RES are achieving extremely low prices, with a highly dispersed generation, which are transforming the grid and the market and are forcing electricity companies to change their business model. The electricity grid is also being transformed with innovative technologies in order to integrate the increasing penetration of RES with high efficiency, reliability and with new services to consumers, while the market is reforming and looking for tools to meet the new challenges for its operation.

Electricity is evolving as a main energy carrier with expanding applications replacing fossil fuels, as it spreads everywhere, such as transport, heating/cooling, etc., also being a driver of growth. Electric cars and hydrogen production for fuel cells in buses and trucks that are rapidly entering the market will form an extension of the electricity grid.

In conclusion, the 26th "Energy & Development 2022" Conference, with wide participation and detailed documentation of current developments and technological solutions offered, sent a "message" of optimism. An optimism, which is based on the possibilities that admittedly exist today for the further developments of Greece's energy sector. Developments that will come through investments and substantial reforms aimed at rationalizing the functioning and optimization of the energy market. Something that can be achieved in cooperation with the relevant Greek and European bodies and companies. The latter appear ready to respond and participate in the restructuring of the regulatory and operational framework that is being attempted in this period. IENE was, is and will be a facilitator in this effort.