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IICEC Annual Report 2018
1. IICEC-SABANCI UNIVERSITY TIMES ENERGY MODEL (ISTEM)

During 2018, one of the major IICEC projects continued to be the new IICEC-Sabanci University TIMES Energy Model (ISTEM), a holistic energy model that particularly focuses on the Turkish energy economy. MARKAL/TIMES modeling system is a combined engineering and economy modeling framework developed at the International Energy Agency (IEA). TIMES model has been widely used in different energy sectors, regions and countries. ISTEM is a technology-rich, bottom-up optimization model under development by IICEC that builds upon the verified TIMES model with adaptation to the Turkish energy system.

Similar to other bottom-up models, ISTEM requires comprehensive information about each and every aspect of a complete energy system: 1) Primary energy resources and technologies (including domestic supply, imports, and exports); 2) Energy conversion and transmission technologies; and 3) Energy services consumption and technologies (energy-using technologies in the residential, commercial, industrial, transportation, and agricultural sectors).

Since a holistic and detailed energy-economy-technology model can provide for an overall and in-depth understanding of an energy economy, ISTEM is built on a Reference Energy System representing the whole energy economy with an advanced level of detail from primary energy supply until final energy consumption. This provides several advantages that makes the more extensive data collection and analysis effort a good investment. Based on policy objectives and relevant constraints, it provides an accurate prediction of what the Turkish Reference Energy System will look like in future periods, since the optimization conducted for those periods will already accommodate what is expected about future dynamics including energy policies, energy markets and technologies.

To provide enough input for the proposed data-rich model, IICEC relies on a wide variety of national and international data sources and statistics such as reports and statistics from Ministry of Energy and Natural Resources, Energy Market Regulatory Authority and other relevant official institutions, (IEA), technology data, EA reports, indicators and databases, TURKSTAT documentations, Turkish State Meteorological Service) and knowledge regarding business, market and technology developments that are not yet reflected in statistical databases.

“ISTEM can represent energy dynamics over a multi-period time horizon in the context of Turkish energy economy. It relies on a comprehensive set of data and analysis that IICEC has been developing.”
### IICEC TIMES ENERGY MODEL

A Holistic Representation with Detailed Technologies

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<th>Primary Energy (Production, Import/Export)</th>
<th>Conversion sectors/processes</th>
<th>Final Energy</th>
<th>End-use Technologies</th>
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ISTEM can be used to explore and compare the possible energy futures based on various scenarios.

Contrary to analyses that rely on econometric trends to make long-term projections, scenarios perspective serves as the only practical choice to estimate energy trends beyond a few years. An energy scenario provides a set of consistent assumptions that describe the main drivers of energy policy objectives, technology choices, and energy use. This leads to a coherent organization and representation of the system under investigation. Scenarios can reflect:

- Energy policies and strategies,
- Primary energy supplies,
- Energy services demands,
- Current and future energy technologies across the energy value chain.

Solving different scenarios may lead to contrasting solutions; therefore, comparing these unequal solutions can reveal important information about the role of distinct components in the energy system.

Differences among scenarios can concern:

- Energy policies that would affect the energy sectors in a variety of ways,
- Future improvements in the cost or performance of energy technologies,
- The emergence of new energy technologies or associated business models
- Changes in natural conditions that would affect the energy system,
- Many other factors.

ISTEM enables sector-specific analyses from a holistic perspective, ISTEM provides many research opportunities. For example:

- Enables sector-specific analyses from a holistic perspective,
- In the power sector, the future of power generation mix under different scenarios and reflecting technology detail,
- A holistic perspective on any type of fuel from supply to final use, for example, use of natural gas or coal,
- In the transport sector future Turkish light vs. medium distillate demand and impacts on the Turkish refinery sector,
- In industrial and buildings sectors, the role of energy efficiency and technologies in current and future demands.

ISTEM will address relevant policy and resource questions in all Turkish energy sectors in equilibrium producing an integrated Turkey Energy Outlook. The Turkey Energy Outlook will be IICEC’s flagship publication. As the name suggests, it will have a strong resemblance to the IEA’s World Energy Outlook. As with the IEA publication, its content will be based on a rigorous modeling analysis by ISTEM to produce alternative quantitative scenarios out to 2040. These scenarios will explore and compare different possible energy futures for Turkey.
2. IICEC ENERGY AND CLIMATE RESEARCH PAPERS

During 2018, IICEC has published four research papers related to current status and future prospects of the energy and climate.

Oil continues to have a large share in total energy supply mainly due to its presence as the major fuel in the transportation sector. Understanding and exploring oil supply, demand and price drivers is essential for future strategies and managing relevant risks stemming from price volatility for secure, resilient and competitive energy economies.

The Return of Boom-Bust Oil Price Cycles
Robert McNally, President of Rapitan Energy Group, the US

The paper demonstrates why oil price volatility is a permanent feature of the oil market. The author’s combination of economics and historical narrative shows that the world economies will continue to be battered by sharp oil price swings. The paper provides policy advice to help avoid them and their worst consequences.

Turkey is largely dependent on primary energy imports where oil imports has a significant share. Therefore, Turkey is negatively impacted by oil price booms in several ways. Various options to reduce the exposure and mitigate the risk are presented.

Producers: Russia, Saudi Arabia and the USA
Vitaliy Yemakov, National Research University
Higher School of Economics, Russia

The paper studies the dynamics that the three largest oil producers of the world created when they built the oil market, how they shaped the marketplace, and the current situation. According to the report, the world is transitioning to a low-carbon future, and strategic conflicts of interest in the global oil market can lead to dramatic and destructive price fluctuations. Under these circumstances, it becomes important to think of the whole timeline from the past to the present and the future, understand how the developments in the Big Three changed the oil industry, why and how strategies have changed, and what changes mean. The report outlines the challenges faced by the Big Three, and takes a comprehensive look into the developments in the global oil market. The main issue observed by Dr. Yemakov in the report is how producer and exporter companies with different revenue needs and levels of financial resilience will reach an agreement.

Using Natural Gas as an Environmentally Sustainable Power Source with Solid Oxide Fuel Cells
Shalima Shavuli Can, Camine DiGilio, Daniel EhsanollahiBadiei, Mehmet Ali Gulgun, Canar Ozcak, Sehat Yeşilyurt, IICEC and Sabancı University

Natural gas is expected to have an important role in future energy supplies as it provides abundant resources and more efficient conversion technologies with much lower emissions footprint compared to other fossil fuels. However, the cost of reducing the emissions from natural gas combustion by means of carbon capture technologies is much higher than that for coal. The cost is very high for natural gas to be a competitive source for electricity. Therefore, the leading alternative approach using natural gas in a more sustainable way for power generation is solid oxide fuel cells (SOFCs) due to their efficiency and cost performance. The authors present the technology in detail, including a cost comparison of current SOFC technology and natural gas turbines. Pathways to cost competitive SOFCs are outlined together with policy recommendations.

Carbon Capture, Storage and Utilization in Turkey
Danaal EhsanollahiBadiei, IICEC and Sabancı University

In utilization of fossil fuels, particularly the coal, at lower carbon intensity levels, carbon capture, utilization, and storage (CCUS) stands as a unique technology with important untapped potential worldwide. Turkey’s significant resource base and policy objectives towards larger use of coal in energy supply makes the CCUS an important option for Turkey, serving its wider energy and environmental objectives together with wider use of renewable energy solutions. The author analyzes the use of a relatively proven method of carbon separation in the context of the Turkish coal power plant fleet. One insight provided by the study is how a high discount rate would discourage investment in carbon capture. Another is the potential importance of a carbon trading market that would encourage investment. A game theory approach is used to estimate investments and costs with and without coordination, and finds that central decision making produces a more cost-effective result both by achieving lower technical costs and acquiring more favorable financing terms.
3. IICEC ENERGY MARKET NEWSLETTER

The IICEC Energy Market Newsletter is a unique product of IICEC intended to provide up-to-date insights and accurate information to business executives, academia and government on key global and regional energy challenges. This is in line with the IICEC mission to serve in addressing the challenges and developing solutions for a sustainable energy future for the region and the world.

The Newsletter accounts for the strategic position of Istanbul, where Europe and Asia meet, located at the crossroads of almost all current and emerging energy players, both on the producing and consuming sides of global energy markets. Hence, utilising this strategic position, with the IICEC Newsletter, IICEC is providing up-to-date information and data within a reader-friendly publication.

The IICEC Energy Market Newsletter includes a roundup of industry news, business changes that affect customers, a variety of energy-related statistics and data. There are legislative and policy updates, monthly business reports, news articles on relevant energy issues, analyses of supply, demand, and prices, reports on IICEC activities, notices of upcoming events, contributions from IICEC Members and a behind-the-scenes look on global energy developments.

The IICEC Energy Market Newsletter provides unique analytic insights to global and regional energy developments; therefore, it distinguishes itself from an ordinary news blog.

4. IICEC’S RESEARCH ASSOCIATES

- Selmiye Alkan Gürsel (Faculty Member)
- Mahmut Faruk Akış (Faculty Member)
- Ali Rana Atılığan (Faculty Member)
- İzak Aliyas (Faculty Member)
- Fevzi Çakmak Cebeci (Faculty Member)
- Carmine DiFiggio (Faculty Member and IICEC Director)
- Bora Şekip Güra (IICEC Research Director)
- Danial Esmaeiliazbadabadi (IICEC Senior Researcher)
- Mehmet Doğan Üçak (IICEC Coordinator)
- Ümit Ekmeç (Faculty Member)
- Ahmed Evin (Emeritus Professor)
- Serap Hayal Soylaş (Post-doc)
- Gözde İnce (Faculty Member)
- İsmet İnönü Soylas (Post-doc)
- Mural Kaya (Faculty Member)
- Kemal Külaq (Faculty Member)
- Ali Kaya (Faculty Member)
- Yusuf Menceloğlu (Faculty Member)
- Ahmet Onat (Faculty Member)
- Cleva Ow-Yang (Faculty Member)
- Volkan Özgüz (Faculty Member)
- Asif Sabanovic (Emeritus Professor)
- Burç Müfit (Faculty Member)
- Kürşat Sendur (Faculty Member)
- Güvenç Şahin (Faculty Member)
- Serhat Yaşlıyurt (Faculty Member)
- Füsun Ülengin (Dean of Faculty of Management)
- Mehmet Yıldız (Faculty Member)
- Serkan Ünal (Researcher)
- Alp Yürüm (Researcher)
- Yuda Yürek (Emeritus Professor)
- Mehmet Ali Gülgün (Faculty Member)

Collective Expertise of IICEC’s Research Associates

The Sabancı University Faculty of Engineering and Natural Sciences, Faculty of Arts and Social Sciences and School of Management are involved in a variety of energy issues and research. Sabancı University’s centers and organizations such as IPC, SUNUM, YERİM also provide a strong base for collective know-how and expertise in a variety of energy related topics. New energy policy strategies that emerge from IICEC are developed by means of this collaborative work. Hence, IICEC’s role of contributing to a secure, efficient, sustainable and clean energy future is further enabled.
5. ANALYTIC ACTIVITIES RELATED OUTREACH

25 April 2018, EnerSTOCK, Adana

ICEC Director Prof. Carmine Difiglio delivered a keynote speech at the 14th International Conference on Energy Storage. His presentation was titled “Enabling the Required Growth in Energy Storage” EnerSTOCK 2018 Conference organized in cooperation with international Energy Agency Technology Collaboration Program on Energy Conservation Through Energy Storage (IEA-TCP ECES), is the biennial conference for discussing the state of the art research, development and deployment of energy storage technologies. Prof. Difiglio presented key developments on global energy storage. Its growing importance by larger use of intermittent renewables, his perspectives on key industry and research challenges, role of energy policies, and enables wider benefits of energy storage.

3 May 2018, Forum Istanbul

In his presentation “Turkey’s Position in a World with Shifting Balances: Energy” Prof. Difiglio evaluated Turkey’s current strategies as a net importer of primary energy and presented a broad perspective regarding the solutions in order to tackle with the volatile energy prices including a global perspective. Prof. Difiglio elaborated the importance of collective emergency stocks in defending economies to oil price spikes as well as the role of competitive international energy markets. Prof. Difiglio also underlined the potential benefits and key requirements of developing a regional gas hub in Turkey.

18 May 2018, The Turkey Country Finals of the PowerUp! Competition held by Ef InnoEnergy

Prof. Difiglio was one of the jury members for the country final of the PowerUp! Competition, that features startups in clean energy technologies in Turkey and 25 European countries. The event was organized by Ef InnoEnergy in association with Sabancı University and staged 10 finalists. Startups were assessed by the jury panel based on the originality of their products and services, the benefit to the energy industry, and potential for growth in global markets.

10 July 2018, Euro 2018 European Conference on Operational Research, Valencia

ICEC Senior Researcher Dr. Danial Esmail Aliabadi presented “CCUS In the Context of Turkish Energy Market” at the 29th European Conference on Operational Research in Valencia. Dr. Esmail Aliabadi presented a state-of-the-art mathematical model by which researchers can examine the joint effects of endogenous technology learning and coordination strategy on the behavior of energy sector players based on CO2 technology deployment case. The EURO conferences, with more than four decades’ history, are the largest and most prestigious conferences for Operational Research and Management Science (OR/MS) in Europe organized by the European Association of Operational Research Society.

28 September 2018, Turkish Policy Quarterly

In his article “Oil Price Volatility: Causes, Consequences, and Remedies”, Prof. Difiglio presented the strong relation between oil price spikes and the world economy and explained why small imbalances of supply and demand create large changes in price when demand and supply are not very responsive to oil price changes in the short term. Prof. Difiglio described the reasons for significant importance of oil price volatility for Turkey. The article provides an instrumental perspective on how to prevent oil price shocks, understanding the importance of oil stocks and role of the IEA. The need for collective action on effective use of emergency oil stocks is explained.

17 October 2018, Canada-Turkey Infrastructure & Energy Forum, Istanbul

Prof. Difiglio delivered his keynote address “Energy Infrastructure Investment” where he outlined Turkey’s three energy policy pillars of energy security, localization and improved predictability of energy markets. Prof. Difiglio presented the infrastructure investment needs in various segments such as new pipelines, LNG and FSRU facilities, clean energy oriented power generation technologies. Prof. Difiglio emphasized that a government role is required during the transition period to ensure enough energy investment to meet growing Turkish energy demand while meeting the twin goals of wider use of clean energy and enhanced energy security. Prof. Difiglio explained that a carefully calibrated role for the public and private sectors can achieve Turkish energy policy goals.
1 November 2018, Bora Şekip Güray joined IICEC as Director of Research

Bora Şekip Güray joined the Istanbul International Energy and Climate Center (IICEC) as Director of Research after 20 years of service in public and private sectors in Turkish energy economy. Güray is responsible for IICEC research projects for a secure, efficient, competitive and sustainable energy ecosystem and guiding all research activities of IICEC in close cooperation and dialogue with all key stakeholders.

6 November 2018, Masterpiece Magazine Article

Prof. Carmine Diffiglio discussed clean energy prospects in his informative article in the Masterpiece Magazine on “Reducing GHG Emissions”. Prof. Diffiglio explained in a comprehensive way the multiple benefits around reducing GHG emissions including improved energy security, air quality and access to energy. Prof. Diffiglio emphasized the alignment of other policy goals with reducing GHG emissions to reach objectives. His article underlined that technological groundwork to support strong action has been largely achieved and this will continue to accelerate. Continuous improvements and deployment of renewable energy as well as other low GHG emission technologies such as carbon capture and nuclear power will support targets to achieve a sustainable path for clean energy supply. Prof. Diffiglio also emphasized the importance of energy efficiency and matching the progress with sufficient improvements in this field for a sustainable energy outlook.

6 December 2018, Science and Innovation Diplomacy Network Meeting, Istanbul

Prof. Diffiglio and Mr. Güray attended the Science and Innovation Diplomacy Network Meeting organized by the Brazilian Consulate and presented significant steps taken towards a larger share of renewable energy in Turkey’s energy mix as well as resource potential and associated investment, business and technology related opportunities. Their presentation “Aspects of Renewable Energy Policies of Turkey” provided a qualitative focus on the key indicators of Turkish energy system, explained the role and potential of renewable energy, demonstrated the growth in each type of renewable energy in power generation in a quantitative way and discussed enablers for further growth such as ongoing cost reduction in technologies, sustained grid investments, demand side participation, role of battery storage, government support to ensure needed investments, need for improved predictability, and better risk management in the private sector.

Hürriyet Daily News Columns by Prof. Carmine Diffiglio

Prof. Carmine Diffiglio wrote columns in the Hürriyet Daily News presenting perspectives in a reader-friendly manner concerning some important issues on both global and national energy agendas. In his column “More Reasons to Fight Climate Change” Prof. Diffiglio explained instrumentality of national energy policy objectives, technology cost reductions and competitive market forces in mitigating emissions based on facts and evidences. These policy choices beyond an international agreement include Turkey’s localization strategy to push for development and wider use of renewable energy sources and local technologies. China’s policy priority to cope with serious air pollution problem, renewables growth driven in regions such as India where access to electricity by means of renewable energy is the most convenient approach, and renewable energy requirements by many US states due to economic reasons. Prof. Diffiglio underlined the importance of power sector in climate change and the need for achieving improved energy efficiency.

Prof. Diffiglio’s timely column on oil prices elaborates recent price volatility resembling a rollercoaster over the past four years. In this piece, “Analysis: Don’t be Misled by Recent Lower Prices in Oil Market”, Prof. Diffiglio explained the drivers, namely demand growth, the supply of oil from countries outside OPEC, and how the OPEC countries, now in cooperation with Russia, behave to keep the world oil market in balance, noting that at present high oil production in the United States and OPEC is driving prices down. Prof. Diffiglio explained why it is likely to be a permanent situation and that in a few years the world oil market will become a lot tighter than during the last 10 years. The column brieves on the importance of reduced consumption and maintaining adequate strategic stock with collective actions to release when needed.
Throughout the year, IICEC holds a number of regular events. High-level flagship events, such as the IICEC International Energy and Climate Forum and World Energy Outlook Turkey Launch host distinguished invited speakers, bringing together top-level leaders of the energy world. Global CEOs, heads of states, ministers and leading representatives from academia from all over the globe.

We have also developed special seminar series on particular energy and climate policy topics. These will include both specialists in priority policy issues as well as new high-level events featuring Turkey’s top business, government and academic leaders. Numerous other events are hosted by IICEC that bring international speakers to present timely energy and climate research at IICEC’s headquarters in Karaköy.

These Forums and Seminars, encompassing the development of policy recommendations on energy and climate, were well received and attracted huge media coverage. State officials, embassies and consulates, industry executives, representatives of international organizations, think tanks, other research bodies and universities follow IICEC events and are among the regular participants.

Visionary perspectives are presented at our events, where the most significant geopolitical, economic, and technical aspects of energy issues are extensively discussed. IICEC will continue to make these contributions for decision-makers, investors, and researchers in the field of energy.

In 2018, IICEC organized three events: (1) IICEC Annual Energy Conference featuring World Energy Outlook 2018 Turkey Launch, (2) Seminar by Vitaly Yermakov “Supply Dynamics among the “Big Three” Oil Producers: Russia, Saudi Arabia and the USA” and (3) Seminar by Robert McNally “The Return of Boom and Bust Oil Prices”.

IICEC ANNUAL ENERGY CONFERENCE: WORLD ENERGY OUTLOOK 2018 TURKEY LAUNCH
20 December 2018, Istanbul

The IICEC Conference was held in Istanbul on 20 December 2018 with the participation of representatives from the public institutions, business, academia and non-governmental organizations. The Turkey launch of the World Energy 2018 report prepared by the leadership of Dr. Fatih Birol was followed by a panel themed: Turkish Power Market: The Next Steps.

IIECC Director Prof. Carmine Di FGlio delivered his welcoming remarks. His remarks were followed by the opening speeches of Mr. Cülcüloğlu Sabancı, Founding Chairman of the Sabancı University Board of Trustees and Mr. Tol Biçer, President of TÜSİAD, Minister of Energy and Natural Resources. His Excellency Fatih Dönmez’s message to the Conference regarding significant topics for the energy sector, energy technologies and energy markets was read at the Conference.

Important points concerning energy policies and strategies as well as the current outlook of Turkish and global energy sectors, including landmark developments, challenge areas, and opportunities around the energy markets were shared in the opening speeches.

Fatih Birol: “Turkey’s electricity sector has a very dynamic nature for both public sector and private companies.”
About IICEC

- IICEC is a research institute that provides objective evaluations, taking into account the think-tank analysis of energy policies and business realities of the energy sector.
- IICEC has brought together the key players in the energy sector under the umbrella of a university and established a unique connection of the public-private sector-academy triangle.
- IICEC and Sabancı University Gender and Women’s Studies Center of Excellence (SU Gender) initiated an important collaboration.
- IICEC has recently taken important steps to gain its international research center identity and IICEC’s analytical capacity is strengthening rapidly.
- The “energy-economy-engineering” model developed by IICEC is a comprehensive model where all technologies and processes from primary energy supply until final consumption and energy demand services can be modeled and analyzed in detail.
- These modeling framework will be utilized for IICEC’s “Turkey Energy Outlook” study, which will include scenario analysis to the future.

Energy and Demand Side

- Energy efficiency stands out as a significant area for contributing to energy economy and creating solutions for environmental concerns.
- Energy efficiency policies and support mechanisms developed under the leadership of the Ministry of Energy and Natural Resources are among the leading incentives for the business world.
- It will be valuable to work on models that support demand side of the energy not only via energy prices, but with a perspective that takes into account social benefit-oriented need groups.
- Implementation of comprehensive incentives and measures on efficiency, including R&D, innovation and export focus angles will provide significant benefits in terms of maintaining the competitiveness of industry.

Energy and Technology

- The process of developing an energy market in a transparent, predictable and competitive way can not be considered separately from mega trends such as rapidly developing digitization.
- Industry-university cooperation in energy related challenges and opportunities is a critical area that needs to be explored.

Energy, Economy and Financial Sustainability

- Energy is the basic input of our industry and services sectors, therefore it stands as one of the key driving forces of the economy.
- Energy sector is very strategic; Turkey has made significant progress building on an intense collaboration of the public and private sectors for the past 15 years.
- In order to meet the increasing energy demand, more than $100 billion has been invested in the electricity and natural gas sectors, mostly by the private sector.
- Turkey’s energy sector is going through a difficult period in terms of financial sustainability; the sector needs to be improved from a financial sustainability perspective and with a holistic approach.
- First of all, the capital structure of the sector needs to be reviewed and restructured.
- There are areas that need to be further developed in order to protect both the investor and the consumer in the entire value chain and to ensure supply security, financial sustainability and predictability.
- It is important to develop market structures that reflect competitiveness and efficiency aspects more accurately, especially in the energy sector, it is important to reflect commodity and technology drivers and costs.
- In addition to the financial sustainability of the power generation sector and infrastructure investments, the need to strengthen the mechanisms for quality distribution and retail services is also prominent.
- In order for a more secure, efficient and competitive energy ecosystem to emerge, strengthened financial sustainability with a focus on technology is needed in the energy sector.

Development of the Energy Supply

- In recent years, electricity generation capacity, efficiency and resource diversification have increased significantly.
- The share of local and renewable energy in power generation has risen significantly.
- With the “TEEA” model, which includes domestic technology, an important growth opportunity were created.
- The opportunities centered around electrification trend, which is very striking, should be utilized effectively to benefit from the dynamics of the transportation sector as well as innovation angles.
- In addition to energy supply security, renewable energy resource potential is also one of the most critical issues in terms of a low-carbon development.
- It is important that renewable energy resource potential can be transformed into investment by evaluating the possibilities offered by technological developments. This is significant in terms of enhanced predictability for investments.

Dr. Fatih Birol shared the findings of the 2018 World Energy Outlook Report, the world’s best-selling energy book prepared under his leadership.

- There is a significant transformation in the energy sector.
- Oil markets are entering a period of renewed uncertainty & volatility. Gas geopolitics is becoming important in oil and energy markets. US shale is growing immensely. Hence it is becoming a key player outside OPEC.
- China will become the world’s largest gas importer very soon. The China effect that we witnessed 10 years ago in the oil market, will be seen along the natural gas market.
- Solar and other renewable energies have gained momentum because costs are going down and many countries are taking new steps to move towards renewable energy, mainly for environmental reasons.
- Global CO2 emissions are on the rise in 2018, the divide once again between what is happening and what is declared as targets is growing further apart.
- For the first time last year, population without access to electricity fell below one billion. Most of the success resulted from efforts of India, but in Sub-Saharan Africa region 1 out of 3 people still do not have access to electricity.

Important Messages from the World Energy Outlook 2018 (WEO2018)
Climate Change

- In 2018, CO₂ emissions have broken a historic record in terms of increase. There is a large gap between objectives and what is being realized.
- Looking at the current energy infrastructure, facilities and energy consumption units throughout the world, the emissions they will generate in the period up to 2040 during their normal economic life span corresponds to 95% of the emission amounts defined by the Paris Agreement objectives.
- Therefore, there is a significant need for improvement in existing facilities and processes and this brings an important challenge for climate change.
- Carbon capture and storage stands out as a very important technology. It is important to concentrate more on this technology that still lags behind for commercialization. This technology can combine fossil fuel use and environmental objectives.

Meeting Oil Demand and US Shale Oil

- Saudi Arabia and Russia used to stand as the two largest oil producers in the world until recently. However, the United States has taken the lead to become the first producer by 2018. In 2025, the total production of the US could be equal to the sum of Russia and Saudi Arabia.
- It requires an important question regarding the future of the oil prices whether the US shale oil alone can close the gap between the foreseen demand and the production from existing fields as well as future production from the investments.

Changing Supply and Demand Dynamics in Natural Gas

- While Europe has been the largest natural gas importer until recently, China is becoming the world's largest natural gas importer with 2 digit growth rates in annual demand.
- The share and weight of LNG in natural gas trade is growing significantly. This increase in LNG supply in the upcoming period will have significant impacts on several topics including pricing and contracts.
- While there were only 5 LNG importers in the world in 2000, this number has increased to 49 by the end of 2018. LNG terminals are a very important leverage in negotiations with pipeline suppliers.

Changing Geography of Energy

- There is a big change in energy consumption in the geographical landscape of energy. China and India are the locomotives of energy demand and investments are shifted to such growing economies.

Which types of energy and fuels stand out?

- The most important winner is the renewable energy led by solar and wind.
- Natural gas continues to grow significantly, the main engine of growth is again Asia, China and India.
- There is a decrease in demand for oil in developed countries and an increase in developing economies. The core of the demand change is growing petrochemical industry.
- Two different trends are seen in coal: Asia represents an increase, while in Europe and America there is a decreasing trend.

Energy Investments and the Role of Governments

- In general, an average of 2 trillion dollars are invested in the world energy sector annually. 70% of this amount is through governments and the public sector, directly, indirectly or via incentives based on income guarantees.
- The future direction of energy will be determined by the decisions of the Governments.

Flexibility of Renewable Energy and Electrical Systems

- Magic words in the context of satisfactory growth in renewable energy are: ensuring flexibility in grids and electricity systems.
- If the total share of wind and solar in total electricity generation is around 10%, this situation can be managed with flexibility options in the current systems. However, higher ratios require base load plants, strengthening of electricity grids, utilization of electricity storage technologies and steps to adjust the load curve by providing necessary signals to the consumers when needed.
- In addition to ensuring growth in renewable energy, grid flexibility, management of supply and demand and security of supply should also be provided.

Perspectives on the Electrification Process and What if the Future is Electricity?

- The demand for electricity is growing fast and Uniregionally, the entire growth comes from the developing countries.
- Although oil demand is growing rapidly, if electrification is going to become widely deployed, there could be decrease in oil demand.
- Whether electrification and energy modernization is a solution to climate change will depend on how and from which sources electricity is generated.

“Turkish Power Market: The Next Steps”

In the IECCE Conference a panel was held with senior representatives from the public and private sectors. The current state of the electricity sector in Turkey with a focus on the challenges, potential and development opportunities were discussed.

Dr. Fahit Bird, Executive Director of the International Energy Agency moderated the Panel. The distinguished panelists, namely the General Manager of TEBAS, Turkish Electricity Transmission Corporation Mr. Cihan Kadirer, Bonus Energy General Manager Mr. Mehmet Acar, Engle Turkey’s CEO Mr. Denis Loques, Schneider Electric Turkey and Central Asia President Mr. Bora Tuner and Sabanci Holding Energy Group President Mr. Kayhan Zaimler shared their views on Turkey’s electricity sector and market development.
Orhan Kaldırım
TEİAŞ General Manager
- We have 68,070 kilometers of transmission lines.
- The essence of grid management is electricity based on planning.
- According to the progress on the market, it is important to reflect dynamic changes accurately both at the master plan level and through other relevant plans.

Bora Tuncer
Schneider Electric Turkey and Central Asia President
- A secure, sustainable and competitive electricity system is actually a criteria of being an advanced society today. Digital transformation has added new paradigms into this.
- Around the capabilities of smart devices, digitalization and Industry 4.0, are changing the paradigms.
- Significant commercial developments in the costs and prices of energy production and energy storage equipments have led to an incredible deployment of distributed energy. This will be further accelerated and as a result we think that demand-side participants will be a part of the system. Together with them, generators and distributors will coordinate in a stronger manner.
- What we have solved so far with devices will be upgraded to a higher level by means of planning, technology, analytics and relevant applications. Demand side participation enabled by digitalization will become a part of the game.
- When we consider all trends together, we foresee that a strong, fast, agile energy system infrastructure poses a competitive advantage in the world.

Mehmet Acara
Borusan EnBW Energy General Manager
- Localization in the energy policies is an important issue. Because it is not sufficient to only reduce the current account deficit by decreasing imports of primary resources. At the same time, development and production of technology is essential. Especially TEİAŞ tenders were an important step towards the localization of the equipment used.
- The target of increasing the share of renewable energy as a domestic resource has not changed over time, but it is important to set the quantitative targets more clearly.
- Turkey has to develop solutions to enable financing of new investments.
- By technological developments, we are heading towards an energy world where direct incentives are either gradually diminishing or completely disappearing.
- In such a landscape market equilibrium should be formed according to the market fundamentals as such the market should operate cost based and according to supply and demand balances.

Kivanç Zaimler
Sabancı Holding Energy Group President
- The energy sector is in a significant transformation and the National Energy and Mining Policy is a very important road map. When we look at our young population together with urbanization and consumption habits, we are still in half of Europe in terms of per capita electricity consumption, hence there is a significant growth potential in this sector.
- Steps need to be taken for financial sustainability. The investments reached to 1.05 billion dollars and the outstanding debt is 52 billion dollars. Therefore, we are facing challenges due to equity structure.
- When we consider whether the cash in the system is sufficient to ensure financial sustainability, we also need to consider whether the consumers have been paying the real cost of the energy for a long time.
- When the real cost of energy is not paid, it also avoids focus on energy efficiency in consumption. We should talk more about efficiency along the value chain, not only on consumption, but also in generation, transmission and distribution.
- Today we speak about solar, wind, electric vehicles, even the smart cities. All these require a storage solution in essence. This dimension necessitates real innovation and technology.

Denis Lohest
Engie Turkey CEO
- As Engie we are present in 70 countries. Therefore we have 70 opportunities and competition among different countries.
- We define energy transformation with 4Ds: decarbonization, decentralization, digitalization and decrease in demand.
- Turkey is a country with incredible renewable energy resources. I am convinced that renewable energy will be very important for the energy sector of Turkey.
- We also consider combined cycle options in line with the installed capacity increase in renewable energies.
- In particular, predictability is very important for investors and I believe that market oriented solutions will be adopted in the Turkish energy sector.
Minister of Energy and Natural Resources
His Excellency Fatih Dönmez’s Message to the Conference

Esteemed guests and my distinguished friend Mr. Birol, due to the official visit of the President of Iran His Excellency Mr. Ruhani and his delegation, I have not been able to be with you at the Turkey launch of the World Energy Outlook 2018. I realize that such detailed studies taking into account all stakeholders are providing significant data that are very important for taking strategic decisions in energy. In order to have a sustainable energy future in our region and the world, raising awareness is key. I would like to thank both IICEC and Fatih Birol the IEA for carrying out studies in this line. Especially, Mr. Fatih Birol for all their efforts in increasing awareness.

Weather reports are expected to forecast rainy and sunny days correctly. Its performance point rates in correlation with its accuracy in predicting rainy and cold days. Predicting sunny and warm days do not add point as much.

Like meteorology, that informs us on bad weather conditions we would expect IEA’s flagship publication World Energy Outlook to give us an insight into rainy and cold days. We expect IEA, the “air control center” of the world, to warn and inform us in advance.

Talking about our country’s energy outlook, even if all energy demand in transportation is electrified in the future, we believe our oil production must grow at least by 3-fold. In line with our National Energy and Mineral Policy, we are going to explore oil and natural gas in our waters with two drilling ships. We are going to find it; if it is there. I would like to invite all business people to invest in oil and gas exploration. We realize that without oil or fossil fuels in general our energy demand cannot be met for at least 50 years. We also know that we will be using our available renewable energy resources with the highest efficiency possible. Efficiency is our cleanest resource and we shall be placing immense importance on it. As we say for all “we are going to find it; if it is there”, for efficiency we say “if it is there and we are going to use it”.

In solar energy, we broke records in 2018. At summer months on a sunny day, the solar power plants produced 4,500 megawatts and on snowy days below 1,000 megawatts. This creates a dilemma. The increased share of renewable energy resources will increase the impact of the seasonal changes on the system which also has an impact on the production of thermal power plants. As the report mentions, worldwide wholesale markets are in difficulty and with mechanisms based upon capacity – flexibility there is a transition towards a new electricity market plane. We expect to know the costs in time.

When it comes to trades, we have bought into effect an organized wholesales market in Turkey’s current natural gas trade. In 2019, we will also see the number of forward dated physical contract quantities increase. This will also increase debt in the market. In fact, our goal in electricity and natural gas is to make sure that the market players manage their own risks and achieve their own foresight in the market.

One of the most important pillar of our National Energy and Mining Policy is localization. Our energy transformation projects are actually a technology story. Only technology will make you a critical player in the energy game. If you are a player in a big game you have to have technology and this technology must bring win-win solutions. Turkey, with the IEA projects aims to become one of the most important production basis in renewable energy technologies and storage technology center in the future. We realize that other technologies like Artificial Intelligence, intelligent systems as well as other data processing technologies are crucial and they are on our list of priorities. Electrical cars as well as other numerical technological issues are also being researched in Turkey and we are preparing a roadmap accordingly. The most important part of the future debate in energy is that this debate has not a winner, but a lot of learners.

I would like to congratulate Dr. Fatih Birol and Sabancı University. I am confident that the report will bring us a multifaceted approach and deepen our understanding. I would like to extend my whole-hearted greetings to all of you.
Seminar by Vitaliy Yermakov
“Supply Dynamics among the ‘Big Three’ Oil Producers: Russia, Saudi Arabia and the USA”

4 October 2018, Sabancı University, Minerva Palace

Sabancı University Istanbul International Center for Energy and Climate (IICEC) revealed a new report by Head of Center for Energy Policy Research at Higher School of Economics, Dr. Vitaliy Yermakov on “Supply Dynamics among the “Big Three” Oil Producers: Russia, Saudi Arabia, and the USA.” According to the report presented by Dr. Yermakov, the world is transitioning to a low-carbon future, and the strategic conflicts of interest among Russia, Saudi Arabia and the USA in the global oil market can lead to dramatic and destructive price fluctuations.

Bringing together key stakeholders in energy and climate issues, Sabancı University Istanbul International Center for Energy and Climate (IICEC) continues to publish breakthrough reports. The report “Supply Dynamics among the “Big Three” Oil Producers: Russia, Saudi Arabia and the USA” written by Head of Center for Energy Policy Research at Higher School of Economics, Dr. Vitaliy Yermakov for the IICEC Energy and Climate Research Series was revealed at an event held in Istanbul.

Hosting the event, Sabancı University IICEC Director Prof. Engin delivered introductory remarks, saying “IICEC will continue to invite the most prominent names in the sector towards its mission of being a respected platform that brings together key stakeholders in energy and climate issues.”

Dr. Vitaliy Yermakov presented the report, discussing how the developments in the Russian, Saudi and US oil markets over the last decade shaped the petroleum industry, why and how their strategies changed over this time, and the implications of these changes on the present of the industry. The report presentation was followed by a panel discussion with Abdullah Bin Hamad Al-Attiyah Energy and Sustainable Development Foundation Energy Advisor Howard Bevan and Tengiz Turkey CEO Denis Lohest on the report and the industry in general.

Vitaliy Yermakov, Head of Center for Energy Policy Research, Russia’s National Research University - Higher School of Economics, Vitaliy Yermakov, has over 20 years of industry experience and leads research and consulting on Russia’s natural oil and gas market. He also focuses on the analysis of Russia’s investment climate, the tax and regulatory environment, and economic modelling.
Dr. Yermakov: “Russia may never be as strong as it looks, but it will never be as weak as it seems.” Dr. Yermakov began by underlining the rate of variability in petroleum prices. Discussing the impact of actual supply-demand balance and national strategies on the petroleum market, Dr. Vitaly Yermakov said, “America, Russia and Saudi Arabia account for nearly one-third of all petroleum production in the world.” Dr. Yermakov continued: “The boost in production reduced oil prices. The increase in American production was a surprise to everyone. Oil trade moved to new markets, in particular, the US began to aim for the European and Asian markets. Meanwhile, Saudi Arabia started to play a more active role in OPEC.”

Engie Turkey CEO Denis Lestest said: “We should focus on whether there is a possibility for the petroleum market to be split; it is important to note what factors will affect this market, and to what extent. Oil production has become a major influence on the petroleum market.”

Speaking in the panel discussion, Abdul Bin Hamad Al-Attiyah Energy and Sustainable Development Foundation, Ambassador of Qatar, has reviewed how the term of the agreement between OPEC and Russia does not solely depend on the success of the parties. It is an opportunity yielded by the negativity of the situation and ongoing issues in other countries.”

Supply Dynamics Among the Big Three Oil Producers: Russia, Saudi Arabia and the USA Vitaly Yermakov, National Research University Higher School of Economics, Russia

The paper presents key developments in the oil market for the past five years and focuses on the big three global oil producers: Russia, Saudi Arabia and the USA. The paper presents a quantitative analysis using several dimensions such as OPEC influence, Russia’s major producing fields, strong positioning of the US tight oil in global supplies. The paper explores varying motivations of these producers and the strategic conflicts of interest among Russia, Saudi Arabia and the USA in the global oil market can lead to dramatic price fluctuations.

Seminar by Robert McNally
“The Return of Boom and Bust Oil Prices”
2 February 2018, Sabanci University, Minerva Palace

Sabanci University Istanbul International Center for Energy and Climate (IICE), which promotes exchange of ideas and development of energy and climate policies, continues to host important figures from these fields. Robert McNally gave a seminar titled as “The Return of Boom Bust Oil Prices” at Sabanci University Minerva Palace in Karakoy. McNally, consultant and President of the Washington-based energy market, policy, and geopolitical consulting firm Rapidan Energy Group, previously served as Chief Advisor to the World Bank’s Energy, and as the White House National Security Council.

“Price stabilization in oil is vital” McNally began his presentation by saying that oil is the lifeblood of the modern world, he said, all economic dynamics are in fact dependent on oil prices. Therefore, fluctuations in oil prices had caused important problems for, growth indicators, central banks, air transport, military planning, etc.

McNally said that the fluctuations in oil prices are in the nature of oil and he expects unusual price fluctuations to continue; however, he must be prepared for this volatility. McNally explains that there has been enough to take measures against price fluctuations since the 1980s; when the market equilibrium was set to produce kerosene for lighting (to replace whale oil). John Rockefeller established the first cartel to control oil prices by monopolizing the US refining and rail operations at the time. He offered a product to the boom-bust oil prices that previously existed. This ended with the breakup of Standard Oil producing a new era of price instability until the Texas Railroad Commission enforced production quotas. The Texas oil wells have been limited and the boom at the time to stabilize prices. In 1972, there was no longer any spare production capacity in Texas or the United States. Then OPEC stepped in as the new price regulator. When new oil supplies and new demand rose in the 1980s, OPEC was unable to share production cuts among themselves leaving it to Saudi Arabia to accept all of the lost market share in attempting, by itself, to prop up prices. When they refused to do this any longer, they increased supplies in the 1990s and prices fell sharply.

Since then, something new happened at the turn of the century. We have witnessed, almost for the first time, wide and high price fluctuations that have had nothing to do with supply outages. This new era of price instability has been devastating for the world’s economies after the relatively stable price trend from 1986 to 2002. Since then, there have been periods of relatively stable prices only to be interrupted by major supply disturbances. We have seen periods in a period of relatively stable oil prices, but we should not assume that the trend will last indefinitely since the seeds for another boom have already been laid with reduced oil production investments as a result of low prices.

“Today’s fluctuations are unusual; Be prepared for $250 - $150” Indicating that the fluctuations in today’s oil prices are not normal compared to previous periods, McNally said: “Everyone is wondering what the new normal is. Today’s fluctuations are not normal. There are various expectations. The stability in the last 3 years is not deceiving. In terms of delicate balances in the market, it is necessary to be prepared for a new normal range of $80 to $160.”

“Demand for petroleum-powered vehicles is high despite green policy” McNally explains that the use of electric vehicles is now on the rise, but this trend will not bring about peak oil demand. “States are setting very sharp targets that emphasize the use of electric vehicles and are taking steps to implement those targets. On the other hand, in very fast developing economies such as China and Central Asian countries, we see that oil-powered big vehicles are preferred over electric cars when we look at purchases, even if “green policies” are emphasized. So, as these countries grow, petroleum demand increases.”

Referring to the International Energy Agency’s forecast of oil demand between 2015 and 2040, McNally noted that OECD countries are on a stable demand line, but the remaining countries have a growing demand. In conclusion, he finished his presentation by stating: “I have doubts that we will use oil less.”

After McNally’s informative presentation, a Q&A session leading to fruitful discussions was held. Technologies and Management (ETM) MSc. students, energy industry executives, and high-level representatives from energy-related associations attended the event, and a cocktail followed the talk.
IICEC INTERNATIONAL ENERGY & CLIMATE FORUM SERIES

WHAT IS IICEC FORUM?

The IICEC International Energy Forum is a regular annual meeting of leading experts, high-level business and political executives from all over the world, including members of parliaments, ministers and heads of state. IICEC’s previous Energy Forum series (Istanbul 2010, 2011, 2012, 2013, 2014, 2015, 2016 and 2017) – where the chances and opportunities, challenges and threats, pros and cons of energy security policy as well as energy investment and market restructuring have been discussed attracted numerous key decision-makers and stakeholders from Azerbaijan, China, European Union, Iraq, Kazakhstan, Russia, Saudi Arabia, Japan, Turkey, Turkmenistan, United Arab Emirates, United States of America, Canada and Australia. IICEC has become a key venue in the region for the exchange of ideas and open debate.

IICEC 8TH INTERNATIONAL ENERGY AND CLIMATE FORUM
“GLOBAL ENERGY INVESTMENTS: WHAT’S NEXT?”

13 October 2017, Conrad Hotel

The 8th International Energy and Climate Forum by the Sabanci University Istanbul International Center for Energy and Climate was held on Friday, October 13, 2017 under the theme “Global Energy Investments: What’s Next.”

The Forum began with the opening speeches of Güler SABANCI, Founding Chairman of the Board of Trustees, Sabanci University; Prof. Camine DÍEGUÍO, Director of IICEC; and Dr. Fatih BIROL, Executive Director of IEA and IICEC Honorary Board Chairman. Keynote speeches were delivered by HE Slawomir MAZUREK, Undersecretary of State, HEO, Ministry of Environment, Republic of Poland and HE Berat ALBAYRAK, Minister of Energy and Natural Resources, Republic of Turkey.

Other distinguished speakers of the forum included HE Christian BERGER, Ambassador of the European Union to Turkey; Prof. Jason BORDOFF, Founding Director of the Center on Global Energy Policy Columbia University; Ladislav PASZKIEWICZ, Senior VP Strategy & Climate, TOTAL; Dev SANJAL, Executive Vice President of Regions and Chief Executive of Alternative Energy, BP; Dr. Vitaliy YERMAKOV, Head of Center for Energy Policy Research, Energy Institute of Higher School of Economics; Luay AL-KHATIEEB, Executive Director of Iraq Energy Institute; Dr. Tareq EMRAIYAH, Director of the Energy Department, United Nations Industrial Development Organization (UNIDO); Hans-Jürgen KOCH, CEO of Nordic Energy Research; Paddy PADMANATHAN, President and CEO of ACWA Power; Dr. Hans-Holger ROGNER, Senior Scientist, International Institute for Applied Systems Analysis (IIASA).
IIIEC 7th INTERNATIONAL ENERGY AND CLIMATE FORUM
"PARIS COP21: WHAT IMPLICATIONS FOR ENERGY INDUSTRY?"
10 June 2016, Conrad Hotel

The 7th International Energy and Climate Forum of Sabanci University’s Istanbul International Center for Energy and Climate (IIIEC) was held in Istanbul on June 10, 2016. The event was hosted by Sabanci University Board of Trustees Chairman Güler SABANCI and IIIEC International Steering Committee Honorary Chairman Dr. Fatih BIROL.

The Forum began with the speeches from the lectern by the top leaders of energy sector, including IEA Executive Director and IIIEC Honorary Chairman Dr. Fatih BIROL; Undersecretary of the UAE Ministry of Energy, Dr. Matar AI NEYADI; Member of the Parliament and President of the Grand National Assembly of Turkey, Industry, Energy, Natural Resources, Information and Technology Committee, İlyas ALTUNAYDIZ; Special Advisor of the Prime Minister of Japan, Elchi HASEGAWA, and Chairman and CEO of EON SE, Dr. Johannes TEYSSEN.

The speakers of the first panel, under the title of “How to Reconcile Energy and Climate Objectives?”, included Special Advisor of the Prime Minister of Japan, Elchi HASEGAWA; Ambassador of European Union to Turkey, Hansjoerg HABER; Ambassador of Ukraine to Turkey, Dr. Sergiy KORSUNSKYI; and Power and Gas CEO of Siemens AG, MÜHLENKOMMER. The second panel, titled as “How to Reconcile Energy and Climate Objectives?”, was moderated by the President of Sabanci University, Prof. A. Nihat BERKER, and the speakers were the leading executives from Turkish energy industry: CHP Chairman of Shell Turkey, Ahmet ERDEM; President and CEO of GE Turkey, Canan ÖZOY; and President of Sabanci Holding Energy Group, Mehmet GÖÇMEN.

IIIEC 6TH INTERNATIONAL ENERGY FORUM
"ON THE ROAD TO G-20 ANKARA SUMMIT:
GLOBAL ENERGY SECURITY TODAY AND TOMORROW"
15 May 2015, Conrad Hotel

Annually organized by Sabanci University Istanbul International Center for Energy and Climate (IIIEC), and hosted by Sabanci University Board of Trustees Chairman Güler SABANCI and IIIEC International Steering Committee Honorary Chairman Dr. Fatih BIROL, the 6th IIIEC International Energy Forum was held at Conrad Hotel Istanbul on May 15, 2015.

The Forum began with the opening remarks by Güler SABANCI and Dr. Fatih BIROL. Following the keynote speeches of the Special Advisor to Prime Minister of Japan, Elchi HASEGAWA, and the Energy Counselor of the US Secretary, Melanie KENDERDINE, two panels were held under the titles of “Energy Security: Expectations of the Governments from G-20” and “Expectations of the Business World from B-20.”

State Secretary for Energy of Switzerland, Dr. Walter STEINMANN; Former Minister of Foreign Affairs and Member of the Council of State of the Kingdom of Spain, Ana PALACIO; President of the Board of Directors of Turkish Industry & Business Association (TUSİAD), Cansen BAŞARAN-SYMES; Ambassador of Hungary to Turkey, Gabor KISS; Ambassador of Ukraine to Turkey, Dr. Sergiy KORSUNSKYI; EON SE CEO, Dr. Johannes TEYSSEN; GE Vice Chairman, John G. RICE, and EWE AG CEO, Dr. Werner BRINKER were among the prominent speakers of the Forum organized since 2010 for creating a more secure, sustainable, and prosperous global energy future.
We held IICEC 4th International Energy Forum on May 10, 2013, with the participation of the President of the Republic of Turkey, Abdullah Gül, Minister of Energy and Natural Resources of the Republic of Turkey, Taner YILDIZ, and Minister of Petroleum and Mineral Resources of the Kingdom of Saudi Arabia, Ali Al NAJMI, and a number of distinguished speakers from the energy industry and international organizations, who direct their respective regional and global strategies with their ideas.

Distinguished speakers from the energy industry and international organizations included: Deputy State Secretary of Denmark, Hars Jorgen KOCH; Ambassador of Austria to Turkey, Ian BIGGS; International Energy Agency (IEA) Chief Economist, Dr. Faith BIROL; Director General of International Renewable Energy Agency (IRENA), Abraham AMIN; Vice President of International Finance Corporation (IFC) World Bank, Dimitris TSITIRAGOS; Sabanci Holding Energy Group President, Selahattin HAKMAN; Edward S. A. CEC, Bruno LESCOEUR; TAIQA CEC, Carl SHLÉLDON; QMV CEO, Dr. Gerhard ROESS; EON SE CEO, Dr. Johannes TEYSSSEN; SIEMENS CEO, Dr. Michael SUSS; ABBOM Thermal Power CEO, Philippe COCHET; President of Sabanci University, Prof. Dr. Nihat BERK; Executive Vice President of Government Relations, Shell International BV, John CROKER; Managing Director for Corporate Strategy and Energy Efficiency and Climate Change, EBRD, Dr. Jospe TANAKA; Senior Policy Fellow, Imperial College, London, Neil HIRS; Energy Sector Manager Europe and Central Asia, World Bank, Ranjit LAMECH; and Director of European Energy Strategy, CITIGROUP, Seth KLEINMAN. The forum was a tremendous success in the development of policy recommendations on energy and climate, and received brilliant feedback.

James LARSEN: Ambassador of Canada to Turkey, John HOLMES: USA Former Senator, Phil GRAMMA: International Energy Agency (IEA) Chief Economist, Dr. Faith BIROL: GOF SUEZ CEO, Gerard MESTRALLE; Siemens AG CEO, Joe KAESSERM, EON SE CEO, Dr. Johannes TEYSSSEN: Energy Counselor of the Secretary, Melanie KENDRIDIS, Director of Swiss Federal Office for Energy, Dr. Walter STEINMANN, Sabanci Holding Energy Group President, Selahattin HAKMAN; ABBOM, Turkey President, Adil TERKIN; Akeri General Manager, Ahmet Uğur,DANSMAN; GE Turkey President and CEO, Canan OZSOY; General Energy President, Mehmet SERM; RWE Turkey CEO, Dr. Ralph JÄGER, and Zorlu Energy Group General Manager, Sinan AK.

Other distinguished speakers of the forum included: President of Sabanci University, Prof. Dr. Nihat BERK; Shell Vice Chairman, Brian DAVIS; BP Vice Chairman, Dev SANYAL; International Finance Corporation World Bank, Vice President, Dimitris TSITIRAGOS; Ambassador of Australia to Turkey, James LARSEN; Ambassador of Canada to Turkey, John HOLMES; USA Former Senator, Phil GRAMMA: International Energy Agency (IEA) Chief Economist, Dr. Faith BIROL: GOF SUEZ CEO, Gerard MESTRALLE; Siemens AG CEO, Joe KAESSERM, EON SE CEO, Dr. Johannes TEYSSSEN: Energy Counselor of the Secretary, Melanie KENDRIDIS, Director of Swiss Federal Office for Energy, Dr. Walter STEINMANN, Sabanci Holding Energy Group President, Selahattin HAKMAN; ABBOM, Turkey President, Adil TERKIN; Akeri General Manager, Ahmet Uğur,DANSMAN; GE Turkey President and CEO, Canan OZSOY; General Energy President, Mehmet SERM; RWE Turkey CEO, Dr. Ralph JÄGER, and Zorlu Energy Group General Manager, Sinan AK.
The 3rd ICEC International Energy Forum “Regional and Global Climate Change: Physical Observations and Policy Choices” was held on 16 March 2012, The Seed University of Geneva, Chair for Climate Research and Director of the Institute for Environmental Sciences, Prof. Dr. Martin BENJOSTON; Imperial College London, Senior Policy Fellow for Energy and Mitigation at the Grantham Institute, Neil HIRST; Deputy Director of the International Institute for Applied Systems Analysis (IIASA), Director of the Global Energy Assessment (GEA) and Professor of Energy Economics at the Vienna University of Technology, Prof. Dr. Nebojsha NAKICENOVIC; Chairman Emeritus of the UK Atomic Energy Authority (UKAEA), Lady Barbara Thomas JUDGE; Director of Innovation at Carbon Disclosure Project, Tom CARNAAN; ALCOM Global Advisor Sustainable Policies and President of Energy Institute, Joan MACNAUGHTON; CEO and Co-founder of Climate Bonds Initiative, Sean KIDNEY; EBRO Senior Energy and Environment Economist, Grzegorz PIESZKO; Principle Manager for Energy Efficiency and Climate Change at EBRO, Acional HERRERA-MARTINEZ; Independent Strategic Advisor, Dr. Raj THAKORE; Managing Partner of KPMG in Madrid, Antonio Hernández GARCIA; Principal at Sustainable Energy Associates (SEA), Binu PARTHAN; Manager of Strategic Issues at SHELL International BV, Bill SPENCE; Sabanci University, Assoc. Prof. Mahmut Faruk AKSIT.

The 2nd ICEC International Energy Forum “Global Energy Outlook: What Role for the Emerging Countries?” was held on 28 May 2011, The Seed University of Geneva, Chair for Climate Research and Director of the Institute for Environmental Sciences, Prof. Dr. Martin BENJOSTON; Imperial College London, Senior Policy Fellow for Energy and Mitigation at the Grantham Institute, Neil HIRST; Deputy Director of the International Institute for Applied Systems Analysis (IIASA), Director of the Global Energy Assessment (GEA) and Professor of Energy Economics at the Vienna University of Technology, Prof. Dr. Nebojsha NAKICENOVIC; Chairman Emeritus of the UK Atomic Energy Authority (UKAEA), Lady Barbara Thomas JUDGE; Director of Innovation at Carbon Disclosure Project, Tom CARNAAN; ALCOM Global Advisor Sustainable Policies and President of Energy Institute, Joan MACNAUGHTON; CEO and Co-founder of Climate Bonds Initiative, Sean KIDNEY; EBRO Senior Energy and Environment Economist, Grzegorz PIESZKO; Principle Manager for Energy Efficiency and Climate Change at EBRO, Acional HERRERA-MARTINEZ; Independent Strategic Advisor, Dr. Raj THAKORE; Managing Partner of KPMG in Madrid, Antonio Hernández GARCIA; Principal at Sustainable Energy Associates (SEA), Binu PARTHAN; Manager of Strategic Issues at SHELL International BV, Bill SPENCE; Sabanci University, Assoc. Prof. Mahmut Faruk AKSIT.

The 1st ICEC International Energy Forum “Turkey’s Strategic Energy Interface: The Ten-Year Prospect” was held on 27-28 September 2010, Minerva Palas University of Geneva, Chair for Climate Research and Director of the Institute for Environmental Sciences, Prof. Dr. Martin BENJOSTON; Imperial College London, Senior Policy Fellow for Energy and Mitigation at the Grantham Institute, Neil HIRST; Deputy Director of the International Institute for Applied Systems Analysis (IIASA), Director of the Global Energy Assessment (GEA) and Professor of Energy Economics at the Vienna University of Technology, Prof. Dr. Nebojsha NAKICENOVIC; Chairman Emeritus of the UK Atomic Energy Authority (UKAEA), Lady Barbara Thomas JUDGE; Director of Innovation at Carbon Disclosure Project, Tom CARNAAN; ALCOM Global Advisor Sustainable Policies and President of Energy Institute, Joan MACNAUGHTON; CEO and Co-founder of Climate Bonds Initiative, Sean KIDNEY; EBRO Senior Energy and Environment Economist, Grzegorz PIESZKO; Principle Manager for Energy Efficiency and Climate Change at EBRO, Acional HERRERA-MARTINEZ; Independent Strategic Advisor, Dr. Raj THAKORE; Managing Partner of KPMG in Madrid, Antonio Hernández GARCIA; Principal at Sustainable Energy Associates (SEA), Binu PARTHAN; Manager of Strategic Issues at SHELL International BV, Bill SPENCE; Sabanci University, Assoc. Prof. Mahmut Faruk AKSIT.
WORLD ENERGY OUTLOOK TURKEY LAUNCHES

“WORLD ENERGY OUTLOOK 2017” TURKEY PRESENTATION

15 December 2017

Sabanci University Istanbul International Center for Energy and Climate (IICEC) hosted the Turkey presentation of the World Energy Outlook 2017 report. The report was presented by International Energy Agency Executive Director and IICEC Honorary Chairman Dr. Fatih BIROL. Introductory remarks of the meeting were delivered by Prof. Carmine DIFRUGLIO, Director of IICEC; Enol BILECIR, Chairperson of TUSAD; Ziya ALTUNAYALDIZ, President of the Grand National Assembly of Turkey Industry, Energy, Natural Resources, Information and Science Commission.

“WORLD ENERGY OUTLOOK 2016” TURKEY PRESENTATION

20 December 2016

Sabanci University Istanbul International Center for Energy and Climate (IICEC) hosted the Turkey presentation of the World Energy Outlook 2016 report. International Energy Agency Executive Director and IICEC Honorary Chairman Dr. Fatih BIROL presented the World Energy Outlook 2016 report at the meeting.

WORLD ENERGY AND CLIMATE OUTLOOK 2015
AFTER PARIS CLIMATE SUMMIT

11 January 2016

Sabanci University Istanbul International Center for Energy and Climate (IICEC) and TUSAD held annual “World Energy Outlook Turkey Presentation” meeting, this year titled as “World Energy and Climate Outlook After Paris Climate Summit” at Sabanci Center. International Energy Agency Executive Director Dr. Fatih BIROL presented the World Energy Outlook 2015 report. Introductory remarks of the meeting were delivered, respectively, by Sabanci University Founding Chairman of the Board of Trustees Güler SABANCI, TUSAD President of the Board of Directors Camsen BAŞRAN-SYMES, and Undersecretary of the Ministry of Energy and Natural Resources Fatih DÖNMEZ.

“WORLD ENERGY OUTLOOK 2014” TURKEY PRESENTATION

22 December 2014

Sabanci University International Center for Energy and Climate (IICEC) in cooperation with TUSAD organized “World Energy Outlook 2014” Turkey Presentation at Sabanci Center, International Energy Agency (IEA) Chief Economist Dr. Fatih BIROL presented the report. The introductory remarks were made by TUSAD President of the Board of Directors Haluk DİNCER and Minister of Energy and Natural Resources Taner YILDIRIZ.

“WORLD ENERGY OUTLOOK 2014 AFRICA SPECIAL REPORT” TURKEY PRESENTATION

20 October 2014


“WORLD ENERGY OUTLOOK 2013” TURKEY PRESENTATION

20 December 2013

“World Energy Outlook 2013” Turkey Presentation was presented by International Energy Agency Chief Economist and IICEC Honorary Chairman Dr. Fatih BIROL, with the cooperation of IICEC and TUSAD. The introductory remarks were made by Sabanci University Board of Trustees Chair Hüner SABANCI, TUSAD Vice President Memduh BOYDAK and Deputy Minister of Energy and Natural Resources Hasan Mural MERCAN.

ABOUT WORLD ENERGY OUTLOOK

The World Energy Outlook (WEO) is the world’s most authoritative source of energy-market analysis and projections. Published every year, based on objective data and dispassionate analysis, it provides policymakers with insights and analysis on trends in energy demand and supply, and what they mean for energy security, environmental protection and economic development.
PRESENTATION BY MR. COSTIS STAMBOLIS (IENE)
“ENERGY SECURITY IN SOUTHEASTERN EUROPE”
15 November 2017, Sabanci University, Minerva Palace, Istanbul

Sabanci University Istanbul International Center for Energy and Climate (IICEC) and the Institute of Energy for South East Europe (IENE) organized their first joint-event, “Energy Security in Southeastern Europe”. Mr. Costis Stambolis, Executive Director of IENE, presented a talk, followed by a panel moderated by Director of IICEC, Professor Carmine Difiglio, featuring Ambassador Milhat Rende, Independent Board Member of Engie Turkey, and Emeritus Professor Ahmet Evin, Sabanci University. In attendance were energy industry executives, high-level representatives from energy-related associations, Consulate officers, professionals from the energy industry and Sabanci University Energy Technologies and Management students. A reception followed the talk.

THE FUTURE OF ENERGY
31 October 2016, Sabanci Center

Sabanci University Istanbul International Center for Energy and Climate (IICEC) and Hello Tomorrow held an event entitled “The Future of Energy” at Sabanci Center on 31st of October, 2016. The high-level organization brought together leading innovators, scientists, entrepreneurs, corporate executives, investors and industry experts and the event was hosted by Prof. Ayşe KADİOĞLU, Acting President of Sabancı University. The opening remarks of the event were conducted respectively by Hello Tomorrow Turkey Ambassador Timur TOPALGÖKÇE, French Consul General to Istanbul Bertrand BUCHWALTER, President & Chair of the Board of Directors, TİSAD, Canseven BAŞARAN-SYMES, Executive Director of International Energy Agency (IEA) and Steering Committee Honorary Chairman of IICEC Dr. Fathi BIROL (via video); Deputy Minister of Science, Industry & Technology of the Republic of Turkey, Dr. Hakan Ali ÇETİK.

Following the introductory remarks, the first panel named “Creating New Synergies Between Science-Entrepreneurs & Industry Leaders” began under the moderation of Murat ÖZYEĞİN, President of Fiba Group and Didem ALTÖP, Co-Founder & Managing Director of Endeavor Turkey, Panellists: CEO of EnerySA, Kivanc TAIMILER, CEO of Saniko energy Group Adil TIKIR; Senior Partner & Managing Director of Boston Consulting Group Hakan BÜKNER discussed how to establish an effective relation between scientific startups and companies. After coffee break, Vice Chairman of Eczacıbaşı Group and Chairman of 18V Fanuk ECZACIBAŞI delivered his special visionary keynote speech on “Transforming Resource Scarcity into Global Abundance”. The second panel which Didem ALTÖP and Emre KURTİPELİZ (Chairman Mynet, Galata Business Angels and Endeavor Turkey) moderated was entitled “Creating a High-Impact Science Entrepreneurs Ecosystem in Turkey” and the panellists were Co-Founder & CEO of ProNet Arif SAUL, Partner & CEO of Vipora Information Technologies Aytağ ER@student, Managing Director of Revo Capital Cenk BAYRAKDAK and Business Development Leader of TİA Turkey Doğan TAŞKENT.

TALK BY PROF. CARMINE DIFIGLIO (U.S. DoE), “ENERGY MARKETS: ENERGY AND CLIMATE POLICY CHALLENGES”
18 April 2016, Sabanci University, Minerva Palace, İstanbul

Sabanci University Istanbul International Center for Energy and Climate (IICEC) organized a talk on Energy Markets: Energy and Climate Policy Challenges by Prof. Carmine Difiglio, Deputy Director for Energy Security, Office of Energy Policy and Systems Analysis (EPSA) at the U.S. Department of Energy (DoE); Sabanci University Energy Technologies and Management (ETM) MSc students, energy industry executives, and high-level representatives from energy-related associations attended the event, and a cocktail followed the talk.
THE CYPRUS SETTLEMENT AND EASTERN MEDITERRANEAN HYDROCARBON SCENARIOS
18 March 2016, Sabanci University, Minerva Palace, Istanbul

ICIEC in cooperation with Atlantic Council Turkey office organized a panel on “The Cyprus Settlement and Eastern Mediterranean Hydrocarbon Scenarios” at Sabanci University Karaköy on 18 March, Friday.

The speakers were Matthew Bryza, Dinu Patriciu Eurasia Center Nonresident Senior Fellow; Charles Ellinas, Eurasian Energy Futures Initiative Nonresident Senior Fellow; Ahmet Evin, Emeritus Faculty Member, Sabanci University; Mithat Rende, Ambassador(R), Former Chairman of the Executive Committee, OECD; and Harry Tzimitras, Dinu Patriciu Eurasia Center Nonresident Senior Fellow. The panel was moderated by the Atlantic Council’s Turkey Representative and Director of the Atlantic Council’s Energy and Economic Summit, Defne Sadıkçalar Anlian.

TALK BY PROF. SERGEY PALITEV (MITEI),
“ECONOMICS AND GEOPOLITICS OF NATURAL GAS”
7 September 2015, Sabanci University, Minerva Palace, Istanbul

Sabanci University Istanbul International Center for Energy and Climate (ICIEC) organized a talk on Economics and Geopolitics of Natural Gas by Prof. Sergey Palitev, Deputy Director of the MIT Joint Program on the Science and Policy of Global Change, and Senior Research Scientist at Massachusetts Institute of Technology (MIT), Cambridge, USA. Sabanci University Energy Technologies and Management (ETM) MSc students, energy industry executives, and high level representatives from energy related associations attended the event, and a cocktail followed the talk.

U.S. SECRETARY OF ENERGY ERNEST J. MONIZ’S VISIT TO SABANCİ UNIVERSITY – ICIEC
21 November 2014, The Seed, Sakıp Sabancı Museum, Istanbul

U.S. Secretary of Energy Ernest J. Moniz met with Sabanci University Energy Technologies and Management (ETM) MSc Students at Sakıp Sabancı Museum on 21 November, 2014. The meeting began with the opening remarks of Güler SABANCI, Chairman of the Board of Trustees of Sabanci University, and Prof. Dr. Nihat BERKER, President of Sabanci University. IEA Chief Economist and ICIEC International Steering Committee Honorary Chairman Dr. Faith BIROL also attended the meeting. Secretary Dr. Moniz gave a speech on Energy Security and Climate Change, and stated that energy security needs to be addressed collectively in consultation with allies. Secretary Dr. Moniz also remarked that significant ground was covered regarding alternative energy solutions, and discussed the importance of technological developments on the matter. Energy Counselor to the Secretary, Melanie KENDRIDGE also took the floor to expand on energy security and climate change issues in relation to U.S. Energy Policy. The lecture was followed by a Q&A session with the ETM students, and the meeting continued with a special luncheon, during which the students had a warm conversation with the Secretary Dr. Moniz.

“NATURAL GAS IN THE EASTERN MEDITERRANEAN:
OPPORTUNITIES AND CHALLENGES” WORKSHOP
19 November 2013, Sabanci University, Minerva Palace, Istanbul

ICIEC together with the Atlantic Council and EUCERS organized a one-day workshop in Sabancı University Karaköy Minerva Palace on 19 November 2013. The workshop brought together members of the academia, representatives of relevant energy businesses as well as officials from the countries involved and started with the welcome address of John LYMAN, Director at the Atlantic Council’s energy and environment programs, Prof. Dr. Friedbert PFLUEGER, EUCERS director and Prof. Dr. Nihat BERKER, President of Sabancı University who introduced the topic of the conference – Natural Gas in the Eastern Mediterranean: Opportunities and Challenges – to a 100-strong audience.

The first panel, Eastern Mediterranean Gas – Conflict or Cooperation?, started off with a discussion about the political and geographical realities of the region as well as a review of the natural gas projects that are being developed. The panel was moderated by David KORANYI, Deputy Director, Dinu Patriciu Eurasia Center, Atlantic Council U.S., and the speakers included Gal REITER, Modin Energy, Israel; George SHAMMAS, Chairman, Cyprus Energy Regulatory Authority; Hassan Selim ÖZERTEM, Head of Center for Energy Security Studies, International Strategic Research Organization (USAK), Ankara, Turkey; Prof. Dr. Friedbert PFLUEGER, Director, EUCERS King’s College London; UK; Prof. Dr. Hüseyin BAĞCI, Department Chair of International Relations, Middle East Technical University, Ankara, Turkey; Prof. Dr. Ahmet EVİN, Founding Dean of Faculty of Arts and Social Sciences, Sabancı University, Turkey.

The second panel, Eastern Mediterranean Gas – Market and Export Infrastructure Options: Business Views, was made up of business representatives who have an interest in the regional gas market, and moderated by Harry TZIMITRAS, Director, Pito Cyprus Centre. Speakers included Matthias KEUCHEL, General Manager, EnergiAtlanta;
The third panel, Eastern Mediterranean Gas and the Southern Gas Corridor, focused on the contribution of eastern Mediterranean gas to the Southern Corridor – a project that seeks to help European Union member states to wean themselves off their dependence on Russian gas. The panel was moderated by John ROBERTS, Non-Resident Senior Fellow, Atlantic Council U.S., and the speakers of the panel included Dr. Frank UMBACH, Associate Director, EUCERS, King’s College London, UK; Androulla KAMINARA, Director/Special Adviser European Commission; Janusz ŁUKS, CEO, Central Europe Energy Partners, Brussels, Belgium; Ibrahim PALAZ, Expert, energy and Economic Research Center, Caspian Strategy Institute (HASEN), Turkey; Yvonne RUF, Energy Infrastructure Expert, Roland Berger Strategy Consultants GmbH, Germany; and Aura SABADUS, Research Associate, EUCERS King’s College London, U.K.