

Energy Security, Critical Minerals, and Future Perspectives Discussed at Sabancı University IICEC Conference

The 19th IICEC Conference, organized by Sabancı University's Istanbul International Center for Energy and Climate (IICEC), was held under the theme "The Present and Future of Energy Security in the World and in Türkiye: Risks and Solutions in Critical Minerals." In his address as the conference's Guest of Honor, Minister Bayraktar stated that 2026 would be a threshold year in which Türkiye would strengthen its role in the energy and mining sectors. Dr. Fatih Birol, Executive Director of the International Energy Agency (IEA) and Honorary President of IICEC, said in his keynote address at the conference, "I see Türkiye's hosting of COP31 as a critical opportunity to bring climate back to the top of the global agenda."

Organized by Sabancı University's Istanbul International Center for Energy and Climate (IICEC), the IICEC Conference was held on December 26 at Sabancı Center under the theme "The Present and Future of Energy Security in the World and in Türkiye: Risks and Solutions in Critical Minerals." The conference, attended by Turkish Minister of Energy and Natural Resources Dr. Alparslan Bayraktar as the Guest of Honor, opened with speeches by Güler Sabancı, Founding Chair of Sabancı University's Board of Trustees, and Dr. Fatih Birol, Executive Director of the International Energy Agency (IEA) and Honorary President of IICEC.

"Türkiye is on a growth trajectory in electricity in line with its targets"

At the conference, Alparslan Bayraktar, Minister of Energy and Natural Resources of the Republic of Türkiye, spoke about the Ministry's targets for 2026 and beyond, as well as the projects planned within the framework of Türkiye's overall energy vision. In his remarks, Minister Bayraktar underlined that Türkiye is entering a period of accelerating growth in electricity demand.

Bayraktar stated: "Electricity demand in Türkiye will grow rapidly. To meet this increase, we will accelerate generation and infrastructure investments within the scope of Türkiye's new energy architecture. In order to reduce external dependency, we aim to meet electricity demand as much as possible through domestic resources. In this context, renewable energy stands out."

We aim to increase solar and wind installed capacity to 120,000 MW by 2035. As of 2025, Türkiye has entered a clear growth trajectory in line with its electricity targets. This year, we expect to close with more than 8,000 MW of new capacity, including approximately 6,000 MW of solar and nearly 2,000 MW of wind. This represents a highly significant development. Progressing steadily toward the 120,000 MW target is extremely valuable for Türkiye.

Looking ahead to 2026 and beyond, the most critical component of the new energy architecture will be strong infrastructure investments capable of meeting rising electricity demand in a healthy and sustainable manner. We are entering a comprehensive investment period covering both distribution networks and transmission infrastructure. With a high-capacity 'electricity highway' approach connecting Türkiye from east to west and north to south, we are launching the Transmission 2.0 era. Our objective is to establish a strong and resilient electricity infrastructure."

"2026 will be a threshold year in which Türkiye will strengthen its role in energy and mining"

Stating that they aim to position Türkiye more effectively in electricity and natural gas trade, Minister Bayraktar said: "Our objective is to establish a stronger, more international national structure in oil and natural gas—one that both increases domestic production and expands through projects abroad. In mining, we prioritize an approach that places people and the environment at its core, emphasizes value-added production rather than raw material exports, and mobilizes critical and strategic minerals in the service of the energy transition.

We view 2026 as a threshold year in which both the concrete outcomes of this transformation will become visible and a new period of growth will begin. With strong financing mechanisms and partnerships, 2026 will mark a phase in which Türkiye significantly strengthens its role in the energy and mining sectors."

"Geopolitical factors have become an increasingly decisive element in the energy equation"

Dr. Fatih Birol, Executive Director of the International Energy Agency (IEA) and Honorary President of IICEC, emphasized at the conference that geopolitical factors are becoming increasingly decisive in shaping the global energy equation.

Birol stated: "We are entering a period in which oil supply is abundant and demand is slowing, particularly due to developments in China. Production increases in what I refer to as the 'American Five'—the United States, Canada, Brazil, Argentina, and Guyana— have led oil prices to fall from \$80 to \$60 per barrel within a year, and prices are expected to remain around these levels in 2026.

The transportation sector alone accounts for 45% of global oil consumption. While oil demand is expected to continue until 2030–2040, developments beyond that point will be largely determined by electrification in the transport sector.

In natural gas, an unprecedented scale of new LNG capacity is coming online. This expansion is exerting downward pressure on prices while strengthening the position of buyers. In coal, China accounts for 65% of global production, while the rest of the world is experiencing a net downward trend.

Over the past 10 years, electricity demand has grown twice as fast as total energy demand. Over the next 10 years, it is expected to grow six times faster. This surge is being driven by artificial intelligence data centers, cooling and air-conditioning needs, and electric vehicles.”

“The risk of vulnerability in critical minerals similar to the oil crisis of the 1970s”

Dr. Fatih Birol emphasized that a new global era has begun in nuclear energy. Birol stated: “As we predicted years ago, 2025 has become a peak year for nuclear power generation. A strong return to nuclear energy is taking place. For Türkiye, nuclear energy is not a choice, but a strategic necessity.”

Highlighting the risks stemming from the high geographical concentration of critical minerals, as well as their vital importance not only for the energy sector but for many strategic industries, Dr. Birol noted that China currently holds a 92% market share in rare earth elements. He added that even if all alternative refining projects are implemented, this share would decline to only around 75% by 2035.

Dr. Birol warned: “We experienced the oil crisis in the 1970s. In the near future, we cannot rule out the possibility of a similar vulnerability emerging in critical minerals.”

“I see Türkiye’s hosting of COP31 as an extremely critical opportunity”

In addition to issues ranging from energy security to electrification, Dr. Fatih Birol drew attention to the growing importance of climate change.

Birol stated: “Eighty-five percent of global emissions originate from the energy sector, and both the frequency and severity of climate-related disasters are increasing. However, climate change is gradually being pushed to the back of the agenda of world leaders. For this reason, I see Türkiye’s hosting of COP31 as an extremely critical opportunity—one that can bring climate back to the top of the global agenda and build a financing bridge between developed and developing countries.”

“Energy security has become an economic and national security issue”

Güler Sabancı, Founding Chair of the Board of Trustees of Sabancı University, stated in her opening remarks at the conference that significant developments have been taking place in the energy sector in recent years.

Sabancı said: “Global energy demand continues to rise. At the same time, energy security is being profoundly shaped by multiple factors, including geopolitical developments, trade dynamics, critical minerals, and the adverse impacts of climate change.

As a result of these developments, energy security has now also become an economic and national security issue. Significant dynamics continue to unfold across energy sub-sectors, fuels and technologies, as well as within the energy–climate nexus.”

“IICEC, established through collective wisdom, is a pioneering model and center in Türkiye”

Emphasizing that Türkiye continues to maintain a strong position in the global and European energy landscape, Güler Sabancı stated: “Our energy growth dynamics are very strong. Energy infrastructure is developing rapidly, and Türkiye ranks among the top five countries in Europe in renewable energy. With new investments, we are moving further up the rankings. At the same time, steps are being taken to advance energy technologies and strengthen supply chains.”

Referring to the pioneering “energy outlook” studies published annually by IICEC, Sabancı noted: “As a first in Türkiye, IICEC also carried out the ‘Türkiye Critical Energy Minerals Outlook’, adopting a participatory approach based on collective wisdom, and bringing together stakeholders from the public sector, private sector, and academia.

In a period when we are beginning to witness the impact of artificial intelligence across all fields, I attach great importance to creating value through science-based collaboration between academia and the business community. From this perspective, IICEC—established with foresight and collective wisdom—is a pioneering model and center in Türkiye.”

“Significant gains can be achieved by focusing on the development of critical minerals, particularly in refining and high-tech end products”

Bora Şekip Güray, Director of IICEC, delivered the launch presentation of the “Türkiye Critical Energy Minerals Outlook 2025” report. The report provides an analytical assessment of Türkiye’s risks and opportunities in critical energy minerals and puts forward concrete recommendations for key areas of development. It notes that, driven by growth in clean electrification, demand for major critical energy minerals could increase between threefold and elevenfold by 2053, depending on the specific mineral.

In his presentation, Güray underlined the importance of advancing value-added and sustainable production and ensuring technological transformation toward high-value end products, highlighting their significance for strengthening energy security, managing supply risks for other strategic sectors, and effectively capturing emerging opportunities. Güray emphasized that significant gains can be achieved by prioritizing development in critical minerals, particularly in refining and high-technology end products, and added that international cooperation would also play a crucial role in this process.

Panel on Risks and Solutions in Energy Security and Critical Minerals

As part of the conference program presented by Dr. Mehmet Doğan Üçok, Coordinator of IICEC, a panel moderated by Elchin Ibadov, CEO of SOCAR Turkey, was held with the participation of Ayşe Berris Ekinci, Deputy Minister and Ambassador of the Republic of Türkiye Ministry of Foreign Affairs; Mehmet Yılmaz, Chairman of the Mining Association of Türkiye; and Yasemin Hoşder Öztekin, Country Managing Director of Hitachi in Türkiye. The panel offered an in-depth discussion of the evolving, multidimensional dynamics shaping energy security, the closely interconnected developments in critical minerals and electrification, and the diplomatic, industrial, business, and technological dimensions of these transformations. Among the future perspectives highlighted during the panel, a strong focus on human capital emerged as a critical success factor.