

# **TURKIC ORGANIZATIONS STATES ENERGY COMMITTEE**

**AGENDA ITEM:**

**Usage of Thermal Resources in Turkic States**

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## **1.Letter from Secretary General**

Dear Participants,

I welcome you all to the Model Organization of Turkic States 2025 conference.

For the second time, this conference will provide an opportunity to embody and simulate the roles of leaders, diplomats, and international decision-makers of the Turkic world.

Throughout this experience, you will develop fundamental skills such as critical thinking, negotiation, and public speaking. Additionally, you will gain a deeper understanding of current global issues, become more familiar with the structure of the Turkic States Organization, and acquire knowledge that will serve you in your academic and professional endeavours through research on our shared history.

Our academic team is here to enhance and facilitate your experience in the beautifully selected committees by our Secretariat, ensuring an unforgettable conference. I hope that your valuable ideas presented at the conference will contribute to solving both present and future problems and provide you with new perspectives.

Thank you for being part of this journey.

Sincerely,

Muhammet Gökhan YILDIZ

Secretary General of the Model Organization of Turkic States

## **Letters from Co-Under Secretary Generals**

First of all, I would like to say it is a great honor to welcome you all to MODEL TDT'25 Turkic Organization States Energy Committee as the Co-Under Secretary General of the committee. Secondly, I wish to thank my esteemed Co-Under-Secretary-General for his efforts. The committee's subject at hand is a topic that is important for the future well-being of your country both economic and sustainability. And I hope that you will fulfill your duties and be productive during the conference but before the conference starts I expect you to read the guide in order to get the most amount of knowledge you can get. If you have any kind of questions regarding the committee do not hesitate to contact me via email.

[senolcisem@gmail.com](mailto:senolcisem@gmail.com)

Sincerely,

Çisem Şenol Co-Under Secretary General

Dear Delegates,

I can't start without welcoming you all to MTDT'25! I would like to thank isem for her hard work. The agenda item for the committee is a crucial topic for the states' situation. We would like you to read the guide and prepare for the committee! I believe you will find the most effective solutions during the committee. If you have any issues about the guide of the committee you can contact me via WhatsApp.

05443681943

Melikhan Demirkıran Co-Under Secretary General

## **Introduction to the Committee**

As the Energy Committee we aim to understand and increase the potential of Turkic States to sustain and develop more contemporary and eco-friendly ways to produce energy. With the participation of 5 main,3 observer members of Turkic States all the problems and concerns about the topic are discussed until a proper solution is agreed upon by members. When specific solutions are agreed upon,it is the duty of the committee to prepare a detailed document about the problems and the solutions that have been discussed. As to introduce it to the member states.

This year Energy committees agenda is set to be the Thermal resources among the member states. The committee will be discussing the concerns and problems about thermal resources and will be looking for proper solutions for the sake of the future and Turkic States.

As for the authorities and budget, the Energy Committee has a limited budget and voluntary donations make up a huge part of it. That's why all the member states should attend and try to explain their own perspectives on the matter. Also the Energy Committee does not have executive authorities. Meaning the solutions that the member states have agreed upon must be approved by higher authorities before putting them into the action.

## **Introduction to the Agenda item**

Thermal energy can be accounted as new when compared to other kinds of energy types. Also its nature that highly relying on the geography of the country makes it nearly impossible for countries that don't have the resources. Even with that kind of disadvantage it is a useful,eco-friendly and reliable source of energy. To put up with the era and protect the future Turkic States need to focus on this “thermal energy” topic.

### **a)The usage of thermal resources:**

Thermal assets are now considered realistic options in the energy mix for generation of electricity and heat other than their application in geothermal energy and waste heat. One of the forms of energy with the least amount of harm to the environment is geothermal energy that relies on heat within the Earth to produce power, making it fit for long term use. In addition, waste heat recovery systems include systems that extract heat from a factory, power plants, or large building and use the heat output to heat, cool, or even provide power. This does not only promote the improvement of energy usage effectiveness but also reduces emissions of green houses as the need for more fuel is reduced. Based on these reasons, the proper usage of thermal resources has turned out to be an implementable way of addressing global energy demand with a reasonable CO2 outcome towards a green energy scenario. Furthermore, thermal complement includes geothermal with least waste provision and CSP systems, which involves focusing sunlight using mirrors or lenses onto a single place to produce heat that can be used in electricity production. This presents the possibility of developing large-scale renewable electricity generation, based upon the availability of light. Another significant field is connected with

TES technologies or structures; they are used to store the thermal energy during its deficit and discharge it during the periods when electricity is demanded to stabilize the work of the electric power grid. Also, the dispersion of heat from a single source to multiple households or even groups of houses is a very effective heat distribution method that is slowly gaining popularity in most urban areas due to the effectiveness of minimizing the central energy usage while at the same time making the most out of heat energy. Therefore, with their development and the enhancement of cost-reduction, thermal resources are expected to deliver greater contribution to the global Renewable Energy Supply and provide a more diverse and secured energy supply while pursuing climate change objectives.

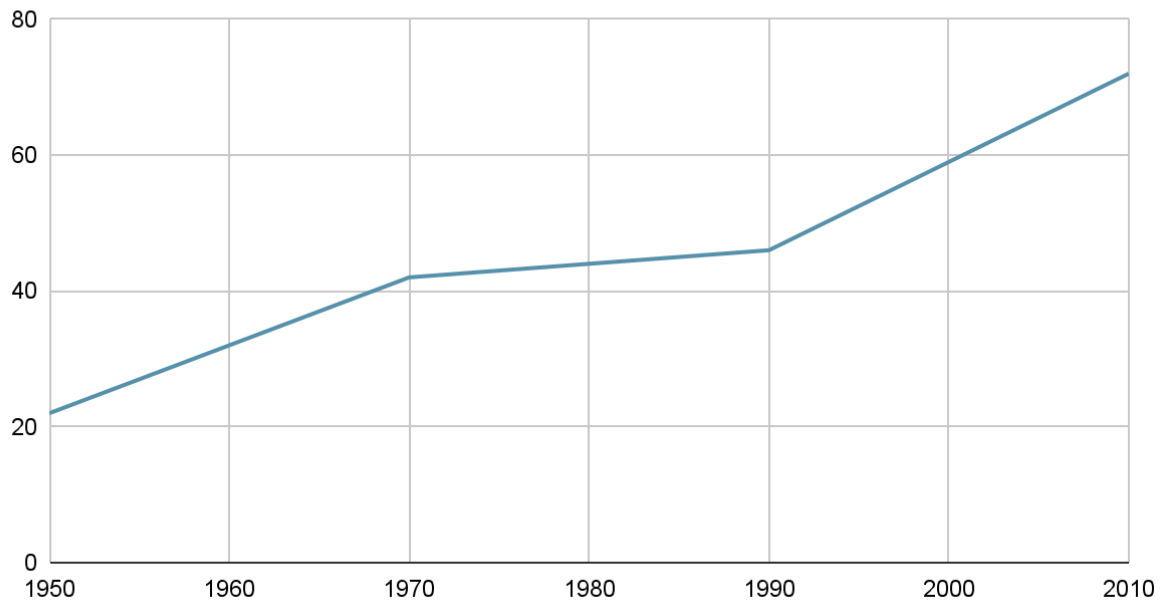
### **b)Production of thermal resources:**

To make it easier to understand, thermal energy is based on a rule. All the substances on the Earth have smaller particles which move all the time. When you heat up a substance, it increases its temperature. That rise in temperature causes small particles to move faster and even causes them to bump into each other. As for geothermal energy it uses Earth's own energy from deep inside of it. At some points of the surface of the Earth there are places where hot steam or hot water comes out. This hot steam/hot water has a lot of energy because of its temperature. Using specially designed systems this energy is being transferred into mechanical energy. Later on, with the help of generators this mechanical energy is also transferred into electricity which we use in our daily lives without a single thought about it. After being used water/steam is firstly cooled and then injected back to the underground-where it belongs-. Thus it prevents Earth from being harmed and provides a renewable and trusted source of energy. As known, the Sun is the main energy source for our planet. To use its unique energy as our beloved electricity, it should be gathered and concentrated by using reflectors plus receivers. The amplified energy is pointed to a tube which contains a transfer fluid. All this process ends up activating a water turbine to produce usable energy. Ocean thermal energy conversion (OTEC) uses the variance in ocean temperature -warmer on the surface, colder in the depth- to produce useful work, typically in the form of electricity. OTEC is a viable alternative given the abundance of ocean water and its high-capacity factor.

Using thermal energy as a renewable energy source throughout the world might be a highly effective way to decrease the damage that is given to the Earth in order to produce energy.

### **c)The importance of thermal resources:**

Lately, it is significant to find more eco-friendly ways to produce electricity. With the increased rates on the usage of energy, production of it became a problem too. The main reason for this increase in the rates is the global population. Our planet provides home to about 8 billion people which means the energy required for one individual to live will be multiplied with that number. After the Industrial Revolution period human lives began to change even more rapidly. More factories brought more products that needed (they still need) electricity to be used. Back then nonrenewable sources were used in order to fulfill this demand on energy. However a problem popped up: Global pollution. The ways to achieve energy were crucial threat to the environment. Other than that they lacked sustainability. They could only be used once.



***(The graphic shows the increase in the energy demand. all numbers are representative and may not show the truth. Important thing is how the line goes up.)***

Later on new ways to produce usable energy were discovered. Their most important trait is they can be used more than once meaning the sustainability issue has been addressed. In addition to that they were not as harmful to the environment as nonrenewable ones. So they were called renewable sources. The idea was simple: use nature itself to produce energy. Solar systems, hydroelectric plant based, wind turbines etc.

However geothermal systems had been used by ancient human communities. They used it as their bath in the Paleolithic Age. In the Roman empire geothermal resources were both used as public baths and underfloor heating systems in homes. It even can be used as a way to attract tourists. Today many hot spring hotels serve their lovers in many countries.

That shows thermal energy is a versatile energy. In Turkic states, it is hard to benefit from its true potential. The future of thermal energy is now up to you!

## 5)The Circumstances of States by Thermal Energy

### Turkey:

One of the vital things that the geothermal resources of Turkey consist of is untapped geothermal energies. These resources are exploited to a large extent for electricity and heating purposes. Since Turkey is located in an area where geological forms are quite active and this is the Aegean and central Anatolia regions in particular. As a consequence, Turkey holds a frontline position in renewable sources of natural energy on the global list because of the grand potential of geothermal energy the country can provide. The radical adoption of these resources has been registered in the recent past after the renewables demand has propelled them to the top. The strong geothermal infrastructure also complements this energy source which interconnects secondary and tertiary sources of electric geothermal technology, geothermal heat pump systems, and direct heat applications in the residential, agricultural, and industrial sectors, hence, in the national grid. In addition, thermal springs" typically found in Pamukkale and Afyonkarahisar" also make thermal tourism possible which, in turn, leads to the reinforcement of local economies. Therefore, it ensures the local economies benefit from this. However, the aforementioned strategy of investment is well aligned with the less import-focusing goal of Turkey alongside the greater concentration of renewables in the national energy framework. Off, changes have been observed in the governmental perspective in the direction of IRR, Resources Renewables in particular which has become a part of the options for being ratified. This in its turn has been the reason for setting out plans which are aimed at ensuring the levels of imports are kept low. Progress in the energy field, for instance, is also the outcome of improvement in infrastructure, privatization promotion, as well as provision of funds for research and development. In this area, Turkey is going to substantially increase the geothermal plant capacity not only to produce electricity but also for the district heating system. Nevertheless, the country has become successful in the current period to provide more power to the society using renewable energy sources and at the same time to achieve net zero carbon emissions. The realization of sustainability and green technology concepts is the main concern in this regard since the demand for renewable energy sources continues to expand, though it needs to be addressed.



## **Kyrgyzstan:**

The Central Asian nation of Kyrgyzstan is endowed with a fantastic wealth of geothermal deposits spread throughout its mountainous parts. Such energy can be produced through an underground reservoir and a hot spring. There is an increasing conversion of Kyrgyzstan to geothermal power, particularly for space heating in residential, educational, and healthcare institutions as well as for greenhouse applications. The people living in the remote areas of far-flung villages within Kyrgyzstan are the main benefactors, as natural gas and electricity supplies are rare in their localities. A district heating system and small hydropower stations are being established. Agricultural activities will tend to be boosted through possible developments like extended growing seasons and raised food production. This has to do with the importance of agriculture to Kyrgyzstan's economy and rural communities. Again, through this increased demand for geothermal energy, the importation of natural gas and electricity could also be reduced. There is also a green energy source, which can assure an environmentally friendly and relatively low-emission production of geothermal energy capable of substituting light fossil fuels, thus aligning itself with Kyrgyz government's climate ambitions with respect to carbon footprint reduction. Still, the appropriate movement of such means for geothermal energy has not been achieved yet because of infrastructural inadequacies and high implementation costs. The Kyrgyz government, teaming up with international partners, is looking into alternative applications of geothermal energy that would optimize the use of this energy source. However, the realization of all these plans will mark a break in increasing the shares of geothermal energy in the energy profile of the Kyrgyz Republic.



## **Hungary:**

Hungary has conventional thermal springs, which have been used for centuries for healing and energy generation. Hungary has also used geothermal energy for heating and producing electricity. Meanwhile, the steps of its genesis herald the district heating system from geothermal sources as aware of promoting energy options characterized by ecologically friendly, reduced dependency on fossil fuel, and reduced GHG emissions. The government of Hungary promotes new geothermal resource development efforts with the inspiration of their renewable energy commitment. That implies support for private investments, cooperating research, and work at an international level to create synergies. Further areas of focus include agricultural uses of energy, greenhouse heating, and aquaculture to foster local economic development and food security. In short, Hungary's maximization of the utilization of thermal resources is representative of a historical legacy with contemporary renewable innovations along the path to sustainability.



## **Turkish Republic of Northern Cyprus :**

Geothermal resources in the Turkish Republic of Northern Cyprus are an essential part of the natural energy scenery of the region; they are principally for therapeutic and recreational purposes. There are various other geothermal sources characterized by warm mineral water in several locations of the Turkish Republic of Northern Cyprus: of all these, the most popular ones are Hamon Thermal Springs and the Lefke region. The springs have been in constant activity for centuries, attracting a myriad of local and foreign visitors with what is termed the healing properties in the hot springs. Besides their therapeutic purposes, there is increasing interest in heat resources as a possible sustainable energy development, while discussions have long revolved around the use of geothermal energy for power generation and heating. Thus, although geothermal energy in the Turkish Republic of Northern Cyprus remains stilted, compared with the world's standards, the trend is that interest is potentially galvanizing to cut back on energy security and reliance on imported fossil fuels.



## **Kazakhstan:**

%0.42 of the global thermal capacity is in Kazakhstan. Even though Kazakhstan has tons of petrol and coal resources and an economy relies on those sources, the country surprisingly managed to increase the production of renewable sources.

In 2015 They launched a new solar power plant in South Kazakhstan with the installed capacity of 50MW (later expanded to 100). This was the first utility-scale solar farm in Central Asia.

To the local reports, the country has a lot of geothermal energy potential. As studies have shown at least  $\frac{1}{4}$  of the country is blessed with this source. Despite such a great potential currently Kazakhstan is not producing power from geothermal resources, although it has the opportunities for much more widespread use and can make a significant contribution to the renewable energy targets established.

Kazakhstan has a great potential for solar plants but there are not enough investments for other kind of thermal systems. However since the economy is based on the marketing of products such as petrol, coal etc. it is significant that they need some alternative ways both for the sake of the country and the future of the planet.

### **Uzbekistan:**

Uzbekistan has huge resources and reserves of geothermal. In the territory of Uzbekistan, the projected geothermal resources at accessible depths (up to 5-6 km) are 4-6 times greater than the hydrocarbon resources, the main consumers, which in the near and distant future will undoubtedly have heat and hot supplies and, to a much lesser extent, electricity generation. Also Uzbekistan has some investment for thermal energy power plants. It is planned to build 12 modern thermal power plants with a total capacity of 7,057 MW by the end of 2027.

Even though having huge potential and some investments, Uzbekistan still lacks the required investment and can't make a great profit out of it.



**Turkmenistan:**

Turkmenistan's main energy source is fossil fuels. However the country has a lot of potential for geothermal energy. Due to the lack of investments and economical reasons this potential can not be used efficiently currently. For the development of the country using renewable sources instead of fossil fuels is crucial. With the usage of current thermal resources waiting underground patiently that development can be achieved in the future.

**Azerbaijan:**

Azerbaijan's energy production mostly relies on fossil fuels but thermal energy also has an important role in Azerbaijan's energy sector. With its resources it is foreseen that in future thermal energy will play even a greater role. For now thermal energy production is still provided by fossil fuels, limiting its renewable potential. Initial studies indicate that the 11 geothermal zones available in Azerbaijan hold water of 30 to 100°C that can generate either electrical or heat energy

## **Questions to be Addressed**

What kind of policies can be used in order to use the thermal potential more effectively in Turkic states

What can be done to increase the investments toward thermal energy sector

How can the thermal sources be used other than its energy function

How can the international collaboration in Turkic states can be increased in order to increase thermal energy capacity

What kind of legal frameworks can be established in order to increase the usage of thermal energy

What are the ways to make Turkic States less rely on fossil fuels?

## Further readings:

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