

*Ministry of Foreign Affairs  
The Republic of Turkey*

## **TURKEY'S ENERGY STRATEGY**



**Ministry of Foreign Affairs  
Deputy General Directorate for Energy,  
Water and Environment**

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## **TURKEY'S ENERGY STRATEGY**

Turkey is at an energy crossroad both in time and geographically. Three fourths of the world's proven oil and gas resources are located in regions neighboring Turkey. And with the increasing dependence of OECD and developing Asian countries on Middle Eastern and Greater Caspian oil Turkey's role as an important energy player has emerged. This energy dependency is likely to have further major geopolitical implications. Given its unique geographical location between the Middle East and the Caspian regions on the one hand and the energy consuming markets on the other, Turkey stands as a key country in ensuring energy security .

Latest developments have shown once again the fragility and vulnerability of the energy markets which brought to the fore the issue of *energy security of supply*. In this context, diversification of energy resources and routes has become one of the key priorities for Europe and other energy consuming markets.

The common challenge today is to guarantee affordable, secure and uninterrupted flow of hydrocarbon resources from the Greater Caspian Region and the Middle East to Europe and beyond. Caspian crude oil will provide Europe with an alternative source, independent from the Middle East region, furthering the efforts of the EU member states to diversify energy sources and routes.

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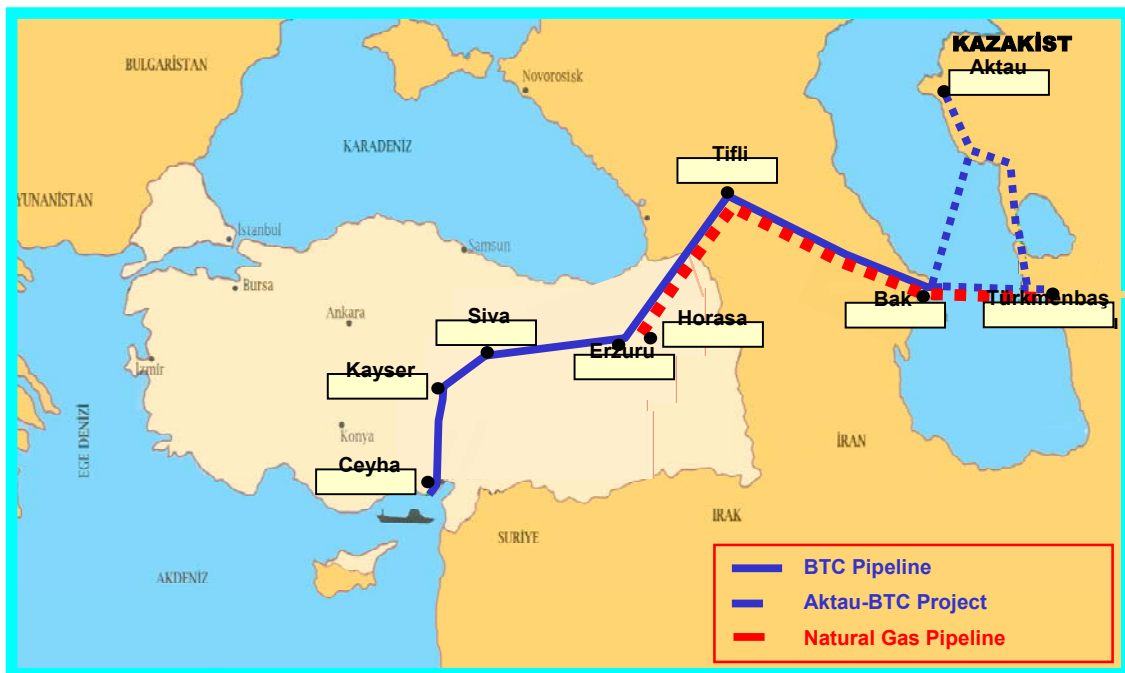
Turkey, as one of the largest regional investors who shares close historical, cultural and economic ties with the countries of the region, has more than economic interests but also carries a responsibility to support these nations in their social and economic development.

It is with these considerations that *the East-West Energy Corridor* was developed as one of the pillars of Turkey's energy strategy and Turkey has demonstrated this by developing oil and gas pipeline projects. The East-West Energy Corridor has been developed in close cooperation with Azerbaijan, Georgia and the United States. The Corridor essentially aims at transporting Caucasian and Central Asian oil as well as natural gas to western markets through safe alternative routes. The main components of the Corridor are the Baku-Tbilisi-Ceyhan (BTC) crude oil pipeline, the Shah-Deniz natural gas pipeline (Baku-Tbilisi-Erzurum) and the Trans-Caspian Natural Gas Pipeline projects, rail roads and other infrastructure.

*The BTC oil pipeline* constitutes a major milestone in the achievement of the "East-West Energy Corridor" with a capacity of 50 million metric tons per annum (1 million barrel per day). The BTC is the main export route for oil resources of the landlocked Caspian region. The pipeline will not only safely transport Caspian oil to western markets but also contribute to safety of navigation and protection of the environment in the Turkish Straits by reducing the number of transiting oil tankers and quantity of oil having to use this risky waterway. Furthermore, the BTC will strengthen global energy security by reducing dependency on a single route.

Recent developments have made the BTC pipeline even more effective with the signing of the Host Government Agreement between Azerbaijan and Kazakhstan to extend the pipeline to Kazakhstan on 16 June 2006. This connection facilitates the flow of Kazakh oil to the Mediterranean through the Aktau-Baku connection.

### **BTC Crude Oil Pipeline**



Heavy tanker traffic in the *Turkish Straits* has been and continues to be a cause of serious concern for Turkey. The possibility of an incident and even a, a possible explosion resulting from a tanker incident in the Turkish Straits would not only endanger the lives of thousands of people, but could also cause significant damage to the marine and coastal environment. In the worst case scenario a disaster could result in the interruption of oil flow to world markets for weeks if not months. For this reason alternative by-pass routes to the Turkish Straits play an important role in reducing the risk of such an incident occurring.

One of the by-pass options Turkey supports is the *Samsun-Ceyhan by-pass oil pipeline project*. It is both economically viable and environmentally sustainable. We are very pleased to observe that there has been a growing interest and throughput commitments for the project. A total amount of 60 million tons of year of Kazak and Russian oil that will flow into Eastern Black Sea will be transported through the pipeline to the Ceyhan Terminal. In addition to the BTC

The Samsun-Ceyhan by-pass pipeline will further enhance safety of navigation and will lessen the pressure on safety of navigation in the Turkish Straits, one of the most important chokepoints for energy security, by reducing tanker traffic and the passage of hazardous cargo to a reasonable level.

In short, taking into account the capacities of the BTC, Kirkuk-Ceyhan (Yumurtalık) Oil Pipeline and Samsun-Ceyhan by-pass pipeline which is under development, as well as the oil transported through the Turkish Straits, it is anticipated that 6 to 7 per cent of global oil supply will transit Turkey by 2012.

Turkey has also been active in developing projects for the secure and sustainable transportation of the natural gas of the Greater Caspian region and the Middle East. The *Baku-Tbilisi-Erzurum natural gas pipeline (BTE) project* which entails shipping Azeri natural gas from the Shah Deniz field to Turkey, will constitute the first leg of the trans-Caspian gas pipeline which will carry Kazak and Turkmen gas to western markets. BTE which will have a capacity of transporting 16 bcm. per annum will become operational by the end of 2006.

The *Trans-Caspian Natural Gas Project* which will transport Kazakh and Turkmen gas through Turkey to Europe is of particular urgency as it will contribute to the diversification of routes and resources. Kazakhstan and Turkmenistan are important producers of natural gas. From the energy security perspective, it is also of importance that the two countries not become dependent on any one country or any one route for exporting their natural gas and oil to western markets.

Turkey has also been developing specific transport projects for Europe such as the Turkish-Greek-Italian Inter-connector Project and the Nabucco Natural Gas Pipeline Project. The purpose is to transport natural gas of various origins through the Turkish national grid to Europe.

The Turkish-Greek Inter-connector Project was turned into the **Turkey-Greece-Italy Inter-Connector** on 4 November 2005. The pipeline will have a capacity of 16 bcm per annum, the Turkish-Greek part of which will become operational by the end of 2006.

Another gas transport project, the Arab Natural Gas Pipeline is also expected to be operational in 2008.

The *Nabucco natural gas pipeline project*, stretching from Turkey to Austria via Bulgaria, Romania and Hungary, will contribute to the diversification of routes and resources needed for all European economies. It will bring mutual benefits for all concerned including producer, consumer and transit countries.

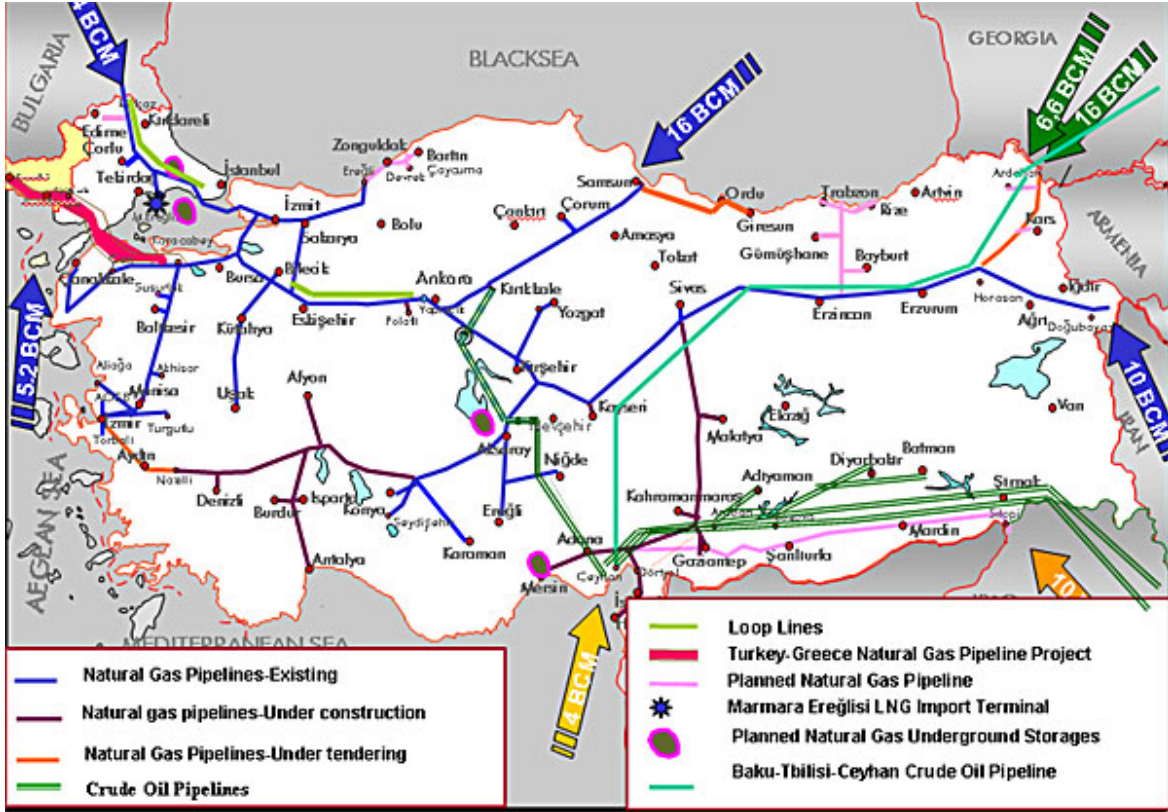
## Natural Gas Pipelines



Turkey is also interested in *the development of Iraqi natural gas* reserves which are mostly located in Northern Iraq. Iraqi natural gas could easily be connected to the Turkish national grid through a pipeline constructed parallel to the *Kirkuk-Ceyhan oil pipeline* using the right of way of the latter. The extension of the *Blue Stream Gas Pipeline* to Ceyhan and thence to Ashkelon with a view to supplying Israel with Russian natural gas is also under consideration.

*The Ceyhan Terminal* will be developed as an energy trading center of the region. One of its many advantages includes an established and state-of-the-art- infrastructure that allows for loading VLCCs as well as ULCCs throughout the year.

## MAJOR PIPELINE PROJECTS



In view of the foregoing it has been widely recognized that Turkey as a transit country has become as important as resource countries with respect to energy security of supplies. The following statement incorporated into the Commission Staff Working Document annexed to the EU Green Paper properly reflects Turkey's key role as a transit country.

*“Turkey is of strategic importance for the security of energy supplies to the EU, lying at the crossroads of various existing and future pipelines carrying both oil and gas from many core producer regions, namely Russia, the Caspian Sea, the Middle East and Northern Africa.”*



## CEYHAN TERMINAL



## **TURKEY'S ENERGY PROFILE**

Turkey has been experiencing substantial demand growth in all segments of the energy sector. The primary energy need of Turkey has been growing by some 6 per cent per annum for decades. Recent forecasts indicate that this trend will continue as a result of rapid urbanization and industrialization. Primary energy demand is projected to reach 220 million toe in 2020, revealing 150 per cent increase as compared to the current figure.

The limited production capacity of domestic energy sources as compared to the growing energy demand have resulted in dependency on energy imports, primarily oil and gas. At present, around 30 per cent of the total energy demand is being met by the domestic resources, while the rest originates from a diversified portfolio of imports. Turkey attaches utmost priority to further diversification of imports in both type and origin. Exploration and production activities are also being intensified in this context.

Electricity demand has shown a significant increase over the past decades and reached to 160 TWh in 2005, highlighting an almost three-fold increase over the past fifteen years. Total installed capacity reached to 39.000 MW by the end of 2005. Demand projections for the period until 2020 indicate that annual average increase in demand will be 7,7 % and 6 % in high and low demand scenarios respectively. According to the low scenario, 40.000 MW of new capacity will be required until 2020. The high scenario necessitates the addition of around 56.000 MW of new capacity over the same period. The investment requirement for the power sector is estimated at more than a hundred billion US dollars until 2020.

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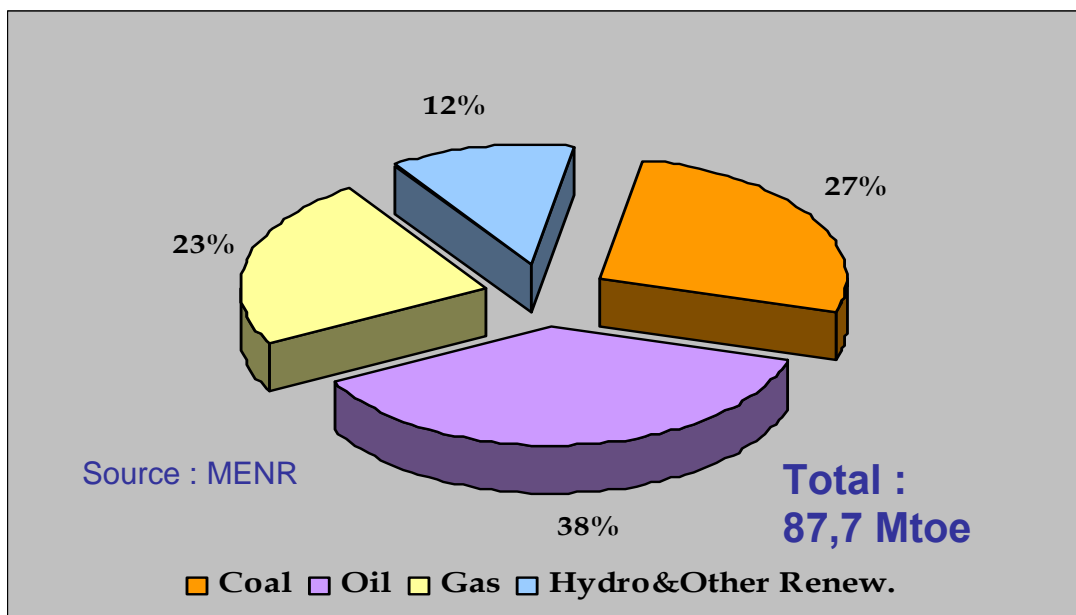
Turkey aims at full utilization of the indigenous hard coal and lignite reserves, hydro and other renewable resources such as wind and solar energy to meet the demand growth in a sustainable manner. Integration of nuclear energy into the Turkish energy mix will also be one of the main tools in responding to the growing electricity demand while avoiding increasing dependence on imported fuels. Nuclear power plants corresponding to a total installed capacity of 5000 MW are expected to be commissioned by 2020.

Turkey accords importance to more efficient and rational functioning of the energy sector for promoting the competitiveness of the national economy. In this regard, substantial progress has been achieved in restructuring and liberalizing the energy market. In this context, harmonization of the legal and regulatory framework with that of the EU is one of the priorities. Legislative framework has been upgraded to be compatible with that of the EU countries since 2001. In this respect, Electricity, Natural Gas and Petroleum Market Laws were enacted to enforce private sector involvement under independent regulation and supervision of the Energy Market Regulatory Authority (EMRA).

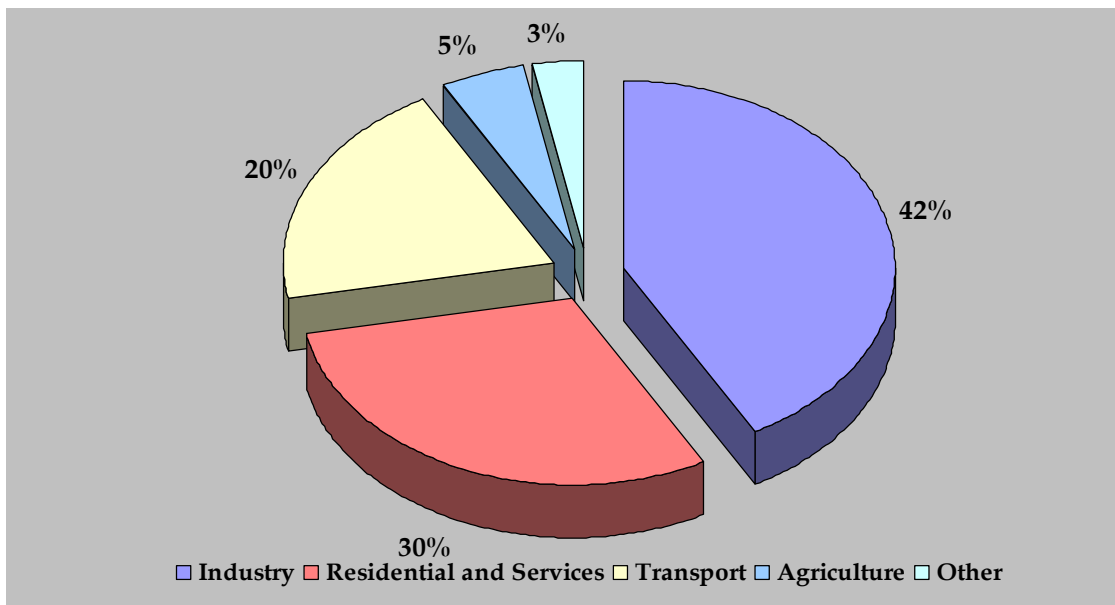
Utilization of renewable energy sources in order to reduce the energy import dependency and to foster greenhouse gas abatement is another. In this context, Renewable Energy Law was enacted in 2005 in order to encourage renewables based generation in competitive market conditions. Supporting mechanisms such as feed-in tariffs and purchase obligation are defined in the law, in conformity with the EU legislation and practice. These mechanisms are envisaged to facilitate the development of power plants based on renewable energy sources.

Turkey also acknowledges the need to reduce energy intensity and to improve energy efficiency. To this end, several programs aiming at improved energy efficiency are underway, while the necessary arrangements are being made with a view to enhancing the efficient use of energy and energy resources.

**TPES by sources (% , 2004)**



**TFC by Sectors (% , 2004)**



### Mail Indicators (2003)

	<b>TPES per capita (toe/capita)</b>	<b>Electricity Consumption per capita (kWh/capita)</b>
<b>Turkey</b>	1.12	1,654
<b>World</b>	1.69	2,429
<b>OECD</b>	4.67	8,044

### Primary Energy Demand Estimates (2004-2020)

