

Current Developments in Regional Energy Security and Turkey

Bud E. Fackrell*

ABSTRACT *With increasing energy consumption from emerging economies, there will be a growing need for new fossil fuel resources and transportation routes, despite the growth in renewable in recent years. Turkey, as a fast growing economy, will likewise require more access to fossil fuel resources to meet its increasing demand for energy. Given Turkey's location, oil and gas from the Caspian region will become very important, and could also allow Turkey to become an energy transit country and energy hub for deliveries to Europe, thereby increasing its international influence.*

Energy has played an unprecedented role in the modernization journey of humankind. Human advancement and economic development have long been driven by decisions on the exploration, production and consumption of energy. We are living in a “hydrocarbon age”, where access to energy shapes how we communicate, travel and live in our new urban life. While renewables will grow greatly, for decades to come most of the energy required will still be coming from fossil fuels, such as oil and gas. Because of this relationship between people and energy, the cost, the reliability of sources and the sustainability of energy has become a matter of concern for everyone.

Major incidents, particularly in producing countries as well as on main energy transportation routes, disruptive technologies, or even perceptions may have far reaching implications on energy prices. For instance, the Arab awakening has impacted production of oil and gas in Libya and elsewhere. The Fukushima accident has had knock-on effects around the world for nuclear and other fuels. These shocks have led to remarkable price hikes. The shale gas revolution in the US, however, has moved the price level the other way. A distorted perception of the current and future availability of oil and gas has led to a “fear premium” that has exacerbated the price volatility, and these price

* President,
BP Turkey
bud.fackrell@bp.com

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swings have occurred when global economic recovery has been fragile. Today, according to BP's *Statistical Review of World's Energy*, energy consumption is shifting towards the emerging economies. In 2011, energy demand fell by 0.8 percent in the OECD countries while it grew by 5.3 percent in the emerging economies. Last year, demand for oil grew at 1 percent while gas demand grew by 2.2 percent. Coal was the only fossil fuel to record above average growth, with demand increasing by 5.4 percent. In 2011, the fastest growing form of energy overall was renewable energy, with production rising around 13 percent. Yet renewables only account for 2 percent of global energy consumption. Hydrocarbons continue to play a pivotal role in the global economy.

The future outlook does not look much different from today. Prospective energy consumption in the medium term is poised to soar, which poses an unprecedented challenge for the world economy. According to the International Energy Agency (IEA), global energy demand will grow by more than one third over the period to 2035, with China, India and the Middle East accounting for 60 percent of the increase. Energy demand will barely move in OECD countries. BP's projection is that the world's GDP will grow by 80 percent in the next 20 years, and as a result energy demand will grow by some 40 percent until 2030. Despite the progress on renewable energy sources, hydrocarbons still dominate the global energy mix, with oil, gas and coal accounting for 80 per-

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cent of global energy consumption, and they will remain in this position for decades to come.

One eye-opening way to look at this is to realize that the increase in energy demand over the next two decades represents twice the current energy consumption of the United States—and this will be in addition to what the world uses today. Ninety-five percent of this extra demand will come from emerging markets, led by China and India. To meet this immense rise in global energy demand, it is expected that \$38 trillion of investment needs to be realized between 2012 and 2035. As energy continues to be indispensable in our life, we will face some challenges in the future. Economic, geopolitical, technological and environmental issues will dominate the discussion on the prospect of energy.

Advances in technology are indispensable in addressing the surging demand for energy. Innovation in communications, computers and information technology makes it possible to find new resources and develop existing resources more efficiently

both onshore and offshore. Interpretation of underground structures, and in turn improvement in exploration, is much easier with 3-D seismic mapping. Innovative extraction techniques, notably combining hydraulic fracturing (“fracking”) with horizontal drilling, have opened opportunities for the industry and unlocked huge hydrocarbon resources that were previously thought of as unrecoverable. The shale gas “revolution” in the US has changed the global energy picture. According to the IEA’s latest *World Energy Outlook*, the US will be a net energy exporter in the coming years, overtaking Russia as the largest gas producer by 2015, and becoming the largest oil producer by around 2020.

Renewable energy also will make a contribution to meeting this rising energy demand. Renewables, nuclear and hydro are projected to grow faster than any single fossil fuel. Yet non-fossil fuels are not expected to reshuffle the energy mix in the future in any big way owing to a low base start. Human creativity has allowed us to cope with the ever increasing need of energy so far. New technologies have always helped us address unprecedented increases in global energy demand and will remain the best way for dealing with rising consumption of energy resources.

Energy and the Impact of Geopolitics

On access to energy resources, geopolitics is an important challenge the world is faced with. Roughly 80

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percent of the world's hydrocarbon reserves happen to be in the Middle East, North Africa, the Caucasus and the Commonwealth of Independent States. Specifically, six countries produce half the world's oil and three countries produce half the world's gas. The consumer countries, however, are much more diverse. OECD countries in the European and Pacific regions are expected to rely increasingly on imports. Any regional or bilateral conflict may have far reaching repercussions for the supply of energy. The energy trade has been getting much bigger and global, and the supply chain traverses both land and sea. Any accidents, terrorist attacks or military strife at the critical transit points will particularly cause problems for the transport of hydrocarbons. The geopolitical situation indeed implies a growing interdependence and the need for cooperation between producers and consumers.

Energy security is on the agenda of many nations as it is vital for economic activities. There are many different definitions of energy security as a concept, but the key one seems to be "the availability and reliability of adequate supplies, at reasonable

costs". Most of the demand for energy is expected to originate from non-OECD countries due to the remarkable economic convergence that has been taking place in the last few decades. To fuel economic growth, each nation has a strong desire for uninterrupted access to energy resources. The interdependence of energy has been a reality of the global economy. Energy security does not mean self-sufficiency. Like any goods subject to international trade, countries could only ensure energy security with open global energy market. As Winston Churchill remarks, "security comes from diversity and diversity alone".

Energy Security and Turkey

Turkey has been experiencing impressive economic growth in the last decade. The fundamental need of Turkey, as with other countries, is to secure reliable energy for its economic development. On a global scale, Turkey has been ranked the 21st largest consumer country as far as primary energy resource consumption is concerned, and Turkey's demand for energy consumption is increasing in line with its economic development. To illustrate this, the Ministry of Energy and Natural Resources estimates that Turkey's demand for electricity will increase at an annual rate of 6 percent between 2009 and 2023, and that Turkey needs to make \$120 billion worth of investment in the energy sector to meet this growing demand. Gas consumption has grown by a quarter in the past two

years. The vision of being a top 10 economy in the world by 2023 also implies that Turkey will undertake a remarkable economic transformation in the years to come. Thus Turkey's energy demand is expected to grow at a breakneck pace as high economic growth requires a great deal of energy consumption.

A properly functioning international and local market is the recipe for energy security. Introduction of competition to the local energy market will allow the consumer to receive the energy required at reasonable prices. The recent draft law on natural gas liberalization is a right step forward. A liberalization of the markets will introduce competition, which will in turn increase the efficiency, provide better service and stabilize, or perhaps even reduce, the price. Turkey is an attractive energy market with strong prospects for growth and increased liberalization will open opportunities for new entrants.

Turkey has not been endowed with large hydrocarbon resources, and needs to import most of its oil and gas needs, usually from its hydrocarbon rich neighbors. Supplying sustainable oil and gas for its booming economy over the coming decades is one of the greatest challenges for the country. Turkey's consumption of natural gas is projected to nearly double by 2030, and this puts Turkey in a unique position of becoming one of the fastest growing gas markets in the world. Turkey's neighbors to the east are hydrocarbon rich countries; the Caspian region, and Azerbaijan

in particular, has one of the largest gas reserves in the world, so one can easily assume that Turkey can access ample supply for its growing economy. This is somewhat true, but not without challenges for many different reasons.

Turkey is very much aware of these challenges and has so far played its role in the region successfully. With its unique location at the crossroads of Asia and Europe, acumen in energy diplomacy, and talented human resources, Turkey is taking its place at the heart of the energy landscape. With its advantageous geopolitical policy, Turkey will be able to influence its neighbors and offer reasonable solutions to complex problems. With increased interconnections, Turkey will become the primary route for Middle East/Caspian hydrocarbon resources to Europe.

An Important Milestone: The BTC Pipeline

The Baku-Tbilisi-Ceyhan (BTC) oil pipeline project was an important milestone project in Turkey's contribution to regional and global energy security. It has helped Turkey make significant strides in becoming an energy terminal in the region. This pipeline also paved the way for Azerbaijan to emerge as a pivotal player in the energy business as the BTC connected Baku to global energy markets. The 1,768 km long, \$4 billion pipeline has been described as "the first great engineering project of the twentieth-first century."

The BTC pipeline transports crude oil from the offshore fields in the Caspian Sea to the Turkish Mediterranean port of Ceyhan from where the crude is further shipped via tankers to European markets. Construction started in April 2003 and the project was completed in 2006. The works done prior to construction were massive. Complex agreements for building, operating and financing were negotiated and signed with many parties. The oil exported via the BTC comes mostly from the offshore Azeri-Chirag-Guneshli (ACG) oil field in Azerbaijan, the largest oil field in the Azerbaijani sector of the Caspian basin. Located about 100 km east of Baku, it is operated by BP on behalf of the Azerbaijan International Operating Company (AIOC). Today, the ACG field, with its \$22 billion investment, ranks as one of the largest producing oil fields in the world.

The BTC pipeline starts at the Sangachal terminal near Baku, and goes through Azerbaijan, Georgia and Turkey to the Ceyhan marine terminal on the Turkish Mediterranean coast. The pipeline, which is buried along its entire length, is 1,768 km in total, with 443 km in Azerbaijan, 249 km in Georgia, and 1,076 km in Turkey. This pipeline traverses 1,500 rivers and water courses, high mountains and several major earthquake fault lines, and was built to meet stringent environmental and social impact standards. The risk of earthquakes required special engineering solutions. Construction could only be undertaken in certain

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months of the year owing to severe winter conditions and 22,000 people were employed, many recruited locally. During the pipeline construction, no one was permanently relocated and all relevant stakeholders were compensated according to the World Bank guidelines. The pipeline's throughput capacity is 1 million barrels of oil per day, a number that can be increased to 1.2 million barrels when needed through the use of drag-reducing agents.

The Baku-Tbilisi-Ceyhan Pipeline Company (BTC Co) owns the pipeline. It is an incorporated joint venture company made up of 11 shareholders and managed by BP, its largest shareholder. BTC Co contracted with BOTAS, the state-owned crude and natural gas pipeline company of Turkey, for the construction and operation of the Turkish portion of the pipeline. Line fill of the BTC pipeline started on May 10, 2005, and the first oil reached the Ceyhan terminal on May 28, 2006. Approximately 10 million barrels of oil were required to

fill the line. On June 4, 2006 the first tanker exported crude from the pipeline.

The BTC pipeline project has also helped Turkey, Georgia and Azerbaijan forge closer economic ties with each other. The construction of such a giant project helped local companies gain expertise and capability in state-of-the-art engineering. Moreover, the historically renowned silk route has been brought back to life with the BTC pipeline project. On October 19 of this year, another milestone was reached, with the 2,000th tanker loaded with BTC-transported oil from the Azeri-Chirag-Gunashli (ACG) field in Azerbaijan, sailing from the Ceyhan Marine Terminal.

The Southern Corridor: Contributing to Europe's Energy Security

Turkey is bidding to host the 2020 Olympic and Paralympic games in Istanbul. The logo is a tulip, with the two parts representing the meeting place of Asia and Europe, a unique reminder of Turkey's geopolitical position. Turkey has many important challenges as a result of its geopolitical environment, and the Southern Gas Corridor is most likely close to the top of the list. The Southern Corridor project supports Turkey's aspirations to become an energy corridor and energy hub between resources in the East and markets in the West.

In addition to supplying its own energy needs, Turkey also wants to play an

important role in supplying gas to Europe, thereby becoming an important regional player. The European Union will most likely import an increasing amount of natural gas in the future due to decreasing domestic production over the next few decades. Furthermore, it is expected that natural gas will take on a greater significance in the energy mix. The production of "unconventional" natural gas, such as shale gas, is not expected to supply material volumes in Europe before 2020. Therefore, Europe will have to import additional volumes of natural gas in order to meet demand in the EU countries, and it is important to secure its strategic interests by ensuring that gas from the Caspian region flows to Europe as promptly and efficiently as possible.

Over the last 20 years, Azerbaijan has built an impressive and successful track record as an innovative and reliable oil and gas supplier. As mentioned previously Azerbaijan, Georgia, and Turkey host the well-known BTC crude oil pipeline, bringing Azerbaijan's oil to world markets. This has proved to be one of the largest and most successful engineering projects in the world. Azerbaijan is now emerging as one of the world's major natural gas producers, and has huge potential to bring a range of new gas sources to markets over the coming decades.

In order to unlock the massive gas export potential of the Caspian, Turkey is clearly the key. All the different future sources of gas have to transit through Turkey and this provides a

unique opportunity for both Azerbaijan and Turkey.

Shah Deniz Stage 2: The Key to Opening the Southern Corridor

BP and its partners in Azerbaijan are developing a giant gas project, Shah Deniz Stage 2, which will open up the Southern Corridor and, for the first time in history, deliver gas from the Caspian Sea to Europe. Discovered in 1999, Shah Deniz is one of the largest gas fields, and also one of the largest engineering projects, in the world. Shah Deniz Stage 1 was commissioned in 2006, and is already producing some 9 billion cubic meters of gas per year for consumption in Azerbaijan, Georgia and Turkey, transported by the South Caucasus Pipeline (SCP), which roughly follows the same route as the BTC. Now BP and its partners are working intensively to develop the Shah Deniz Stage 2 project for first gas delivery in 2018. Stage 2 involves the drilling of many new wells, the building of offshore platforms and facilities, underwater pipelines, and expanding the current Sangachal Terminal and the three pipelines - those through Azerbaijan and Georgia to Turkey-, through Turkey, and then from Turkey into Europe.

The total cost of these projects, end to end, will be around \$40 billion, and the project will produce an additional 16 billion cubic meters of gas per year (bcma). Some 6 bcma will be sold to Turkey and the remaining 10 bcma will be available for onwards trans-

mission to European markets. It is this 10 bcma that enables the pipeline corridor to Europe to be established, bringing Caspian gas to Europe for the first time.

A few key events have opened the door to this historic development. First, the Memorandum of Understanding signed by President Aliyev of Azerbaijan and European Commission President Barroso in Baku in January 2011 provided the political framework for the sale of Azerbaijan's gas to Europe. Second, the agreements on gas sale and transit signed by Turkey and Azerbaijan in Izmir, Turkey, in October 2011 ensured that Azerbaijan's gas can reach Turkey's western border with the EU. Following this, the TANAP (Trans-Anatolia Natural Gas Pipeline) Inter-Governmental Agreement between Azerbaijan and Turkey was signed on June 26, 2012. Third, the Shah Deniz partners in April of this year approved the Front End Engineering and Design (FEED) for the Stage 2 project, thereby committing substantial financial and human resources. There are other future prospects in the Caspian that will significantly increase the amount of gas from the region over the next decades. What this means is that the pipelines built to allow Shah Deniz Stage 2 to move forward now will also be scalable for the future.

In Turkey, the Shah Deniz partners, led by BP, are working with State Oil Company of the Azerbaijan Republic (SOCAR) to review the feasibility of TANAP. Under SOCAR's leadership, TANAP will be the strategic link for

the Southern Corridor. It is also a project that will play a key role in developing Turkey as a gas hub. TANAP will take the gas from Turkey's eastern border with Georgia to the western border. From Turkey's western border, either the Nabucco West pipeline or the Trans-Adriatic Pipeline (TAP) will make up the final part of the Southern Corridor and deliver Shah Deniz gas to customers in Europe. Nabucco West is planned to run from the Turkish-Bulgarian border through Bulgaria, Romania, Hungary and on to Austria. TAP, on the other hand, is designed to bring the Shah Deniz Stage 2 gas to Italy, via Greece and Albania. The decision on which European pipeline route will be chosen will be made by the Shah Deniz partners in mid-2013 on the basis of eight transparent criteria that has been published previously. These include the normal commercial, financial and operational considerations, and will also include more strategic considerations for the future such as expandability.

BP's Role in Developing the Southern Corridor

This is a great opportunity to create a project that will open up the Southern Gas Corridor and make a significant contribution to Europe's energy security. Shah Deniz Stage 2 reflects BP's confidence in the potential of the Caspian region. It also reflects BP's confidence that along with our partners and host governments we have all the experience and capability needed to deliver such a project

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to the highest standards. Building the Southern Corridor will require immense investment of resources and capability. This is what a company with the scale and experience like BP brings to the table.

The governments of Turkey and Azerbaijan have a great vision for creating a new silk road in the region. BP can make a real difference in helping this vision realized through the following areas. Firstly, technology. The Caspian Sea is one of the most demanding drilling environments in the world. With three drilling rigs now dedicated to the Shah Deniz field, BP brings expertise to ensure that these wells are both safe and successful. Its success on Shah Deniz 1 demonstrates this. Secondly, investment, both human and financial. The Shah Deniz Stage 2 will provide jobs for many people. Beyond Azerbaijan, the expansion of the SCP, the building of TANAP, and either the TAP or Nabucco West pipelines will generate jobs across all the countries. The financial investment is substantial. There is a need to coordinate projects in every way—their start dates, their capacities, and their legal agreements. This

requires very good coordination and cooperation between parties, and this is the prime reason that BP plans to take equity in TANAP, TAP or Nabucco West, as well as its existing share in the Shah Deniz consortium and the SCP.

Finally, experience. BP has developed gas fields in major basins across the world from Australia to the Americas. But it is the experience BP has in Azerbaijan, Georgia and Turkey with the ACG field, Shah Deniz Stage 1, and the BTC and SCP pipelines, which gives it real confidence that it can help deliver the Southern Corridor project across the region. The success of these operations today inspires BP to take on tomorrow's challenge of building the Southern Corridor. There is a lot to do before a final investment decision on Shah Deniz Stage 2 can be made in 2013, but the timetable we are on and the progress we have made so far indicates the serious intent of all the parties involved.

Conclusion

The growth in global energy demand will come mostly from non-OECD countries, and in the coming decades the world will need significantly more energy resources. While renewables will grow, most of the energy required will still be coming from fossil fuels, such as oil and gas, in the decades to come. As energy resources are found and developed, their transportation and availability in different areas become paramount. The Southern Gas Corridor is one of these challenges. It will ensure that both Europe and Turkey have additional gas for growth, that countries in the Caspian like Azerbaijan are able to export their gas in a timely and economic way, that countries like Turkey are able to transit the gas safely and securely, and that it will contribute to regional and energy security. We all look forward to the day when natural gas from the Caspian Sea will flow to the heart of Europe. This day is not too far away. ■