Critical infrastructure aspects of energy security: 
Azerbaijan and regional context

Bakhtiyar Aslanbayli
Professor of Security and Energy Policy
Baku State University, AZERBAIJAN

Keywords: Azerbaijan, NATO, critical energy infrastructure in Azerbaijan, energy security, energy supply to Europe, NATO-Azerbaijan relations

Azerbaijan is one of the world’s oldest oil producers and Baku, its capital, has long been known as historic site for oil. The first oil well in the world was drilled in Baku in 1847 at Bibiheybat oil field under the direction and initiation of Russian engineer Semenov using a primitive percussion drilling mechanism. It was not until eleven years later that the first oil well in America was drilled in Pennslyvania (A. Ciarreta, Sh. Nasirov, Analysis of Azerbaijan Oil and Gas Sector, 2010). Oil turned Baku into a center of world oil commerce and enabled it to exert an incredible influence on the entire Caucasian economic development. In 1897-1907, the largest pipeline in the world at that time was built from Baku to Batumi on the Black Sea Coast, a distance of 883 kilometres (N. Aliyev, The History of Oil in Azerbaijan, “Azerbaijan International” journal, Summer 1994, p.22-23).

Throughout 20th century, oil has been used as a leading mechanism in Azerbaijan’s political and economic life. At the beginning of the 20th century, in 1900, Azerbaijan produced more than 50% of world’s oil (11.4 million tons). About 80% of oil production during World War II in former USSR was made in Baku (peak production – 23.5 million tons in 1941). However, oil production subsequently declined sharply starting from 1950s.

Following its independence from the Soviet Union, in 1990s Azerbaijan started to implement an independent oil and gas strategy, which led to an extraordinary amount of international investment flowing into the oil and gas sector. As a result of those investments and close cooperation with international oil companies Azerbaijan managed to build up sound energy infrastructure. Today, Azerbaijan’s best in class energy infrastructure is critical not only for country itself and the South Caucasus and Caspian regions, but also for the Europe, where some of the final consumers are.

Critical energy infrastructure in Azerbaijan

The largest oilfield in the Azerbaijan sector of the Caspian Sea is Azeri-Chirag-Deepwater Gunashli oilfield (ACG). Production started in 1997. In 2011 production from ACG was 261.9 million barrels (an average of 717,600 barrels per day). In addition, about 3.3 billion standard cubic metres of associated gas was also produced in 2011. In total, ACG produced 1.9 billion barrels of oil from 1997 to end 2011 (BP in Azerbaijan Sustainability Report, 2011).

The Shah Deniz gas field (SD), the largest gas field in Azerbaijan, was discovered in 1999. SD is geologically challenging and highly pressured. It has a reservoir thickness of more than 1,000 metres and is 22km long. The field lies beneath water depths ranging from 50-600 metres. Production began in 2006. In 2011, SD produced about 6.67 billion standard cubic metres of gas and around 14 million barrels of condensate from four wells. Since the start of SD production in
late 2006 till the end of 2011, about 30 billion standard cubic metres of gas, and 63.7 million barrels of condensate was exported to the markets (BP in Azerbaijan Sustainability Report, 2011).

Both ACG and SD are connected with offshore and onshore pipeline systems to the Sangachal Terminal, one of the biggest terminals in the world. Sangachal Terminal is a hub where offshore oil and gas is processed prior to export. The terminal includes oil and gas processing facilities. Processing capacity of the terminal is 1.1 million barrels of oil per day and 36.8 million standard cubic metres of gas per day. Maximum storage capacity is about 4 million barrels, with working storage capacity of about 3.2 million barrels of oil. It is designed to treat production from all assets in the Caspian basin and has room for expansion. The Baku-Tbilisi-Ceyhan oil pipeline, the South Caucasus gas pipeline and the Western Route Export oil pipeline are starting here. In 2011, the terminal exported about 291.5 million barrels of oil. On average about 18.2 million standard cubic metres of SD gas was exported from the terminal daily in 2011 (BP in Azerbaijan Sustainability Report, 2011).

In addition to ACG and SD fields, the critical energy infrastructure of Azerbaijan also includes few onshore oil fields with relatively less production, as well as 2 offshore gas fields (Umid and Absheron) with proved significant gas reserves, but still at pre-exploration phase. Another significant element of the energy infrastructure is existing pipeline system to export oil and gas reserves of the Caspian Sea to the international markets.

The Baku-Tbilisi-Ceyhan (BTC) pipeline (1,768km) carries oil from ACG and condensate from SD across Azerbaijan, Georgia and Turkey. In addition, crude oil from Turkmenistan is transported via the link and in the past the pipeline was also used to transport crude oil from Tengiz field in Kazakhstan. The BTC pipeline connects Sangachal Terminal on the shores of the Caspian Sea to Ceyhan marine terminal on the Turkish Mediterranean coast. By the end of 2011, 1,742 tankers had been loaded at Ceyhan since the opening of the BTC pipeline in June 2006. During this period around 1,342 million barrels of crude oil had been moved to world markets. The capacity of the pipeline is 1.2 million barrels per day (BP in Azerbaijan Sustainability Report, 2011).

South Caucasus Pipeline (SCP) (691km) has been operational since late-2006 and delivers gas from Sangachal terminal to the Georgia-Turkey border. During 2011, SCP’s daily average throughput was 12.5 million cubic metres of gas or about 76,000 barrels of oil equivalent per day (BP in Azerbaijan Sustainability Report, 2011).

Potential threat to critical energy infrastructure

With above mentioned energy infrastructure and growing energy potential Azerbaijan, and subsequently the region, are playing increasingly significant role in energy supply to the Euro-Atlantic region. Today Azerbaijan produces 1.3% of global oil (BP Statistical Review of World Energy, 2011). These oil volumes are transported via Azerbaijan and Georgia to the Mediterranean cost of Turkey and onwards to the international markets. Any potential attack to any part of the infrastructure (either to the oil platforms, or terminal, or any part of the pipeline in one of mentioned 3 countries) may result in lack of oil supply to the markets in the capacity of 1.3% of the global production for uncertain period (subject to the scale of potential damage). It can only be guessed how the oil price would react to this shortage!

The situation around natural gas supply from the Caspian brings even more attention to the region. The above mentioned energy infrastructure will be increased due to the start of SD Full
Field Development (or SD Stage 2). This is one of the largest gas development projects in the world. Plans for the project include 2 new offshore platforms, 26 subsea wells to be drilled with 2 semi-submersible rigs, 500km of subsea pipelines built at up to 550m water depth, additional export capacity in Azerbaijan and Georgia and expansion of the Sangachal Terminal (BP in Azerbaijan Sustainability Report, 2011). All of this will increase gas supply and energy security in European markets through the opening of the new Southern Gas Corridor. The project is expected to add a further 16 billion standard cubic metres per year of gas production to the approximately 9 billion standard cubic metres per year from SD Stage 1.

Observers generally agree that the threat of a terrorist attack targeting energy infrastructure is real. Energy infrastructures are an attractive target for terrorists. Several groups have already indicated their intention and demonstrated their capability to conduct such attacks. Some major terrorist figures have clearly expressed their intention to strike global energy markets. In an audio message from December 2004, the Al Qaeda leader had explicitly called for attacks in the Gulf region and in the Caspian Sea (NATO Parliamentary Assembly document - Energy Security: Co-operating to Enhance the Protection of Critical Energy Infrastructures, 2008). In Turkey, the PKK has also stated its intention to target economic interests, and has claimed responsibility for several incidents involving energy infrastructure. In August 2008 there was an explosion at a pumping station on the Turkish portion of the BTC pipeline, which forced the pipeline to be shut down for over two weeks. Although the doubts about the PKK’s involvement in this incident were high, the Turkish authorities have refused the terrorist nature of this incident. Nevertheless, the potential threat of PKK terrorism cannot be totally excluded, and raises the issue of the increased level of protection of the BTC pipeline. This is a major export pipeline to transport Azerbaijan oil (and possibly some part of Kazakhstan oil as well in foreseeable future) to the European market.

The attractiveness of the energy infrastructure to terrorists is a result of specific characteristics – interdependence of the entire infrastructure, dependence of other vital services and sectors on energy, dependence of Western economies on energy infrastructure located outside of Euro-Atlantic region. Even though an attack on a major energy infrastructure might not necessarily cause many victims, the economic cost and disruption are likely to be enormous. In fact its impact can be amplified several times disrupting the targeted infrastructure; having a cascading effect on other energy infrastructures downstream as well as on other sectors of the economy; having a psychological impact upon and being amplified by the media; and potentially causing an overreaction of financial markets (NATO Parliamentary Assembly document - Energy Security: Co-operating to Enhance the Protection of Critical Energy Infrastructures, 2008).

Unfortunately, the terror attacks are not the only potential threat to the critical energy infrastructure in Azerbaijan. The complicated geopolitical situation in the region; often sounding security threats from the neighbouring countries such as Iran, Armenia and Russia; lack of membership in Russia-led Collective Security Treaty Organization, but declaring integration to Europe and Euro Atlantic structures as one of the main directions of the national security; existence of critical energy infrastructure in its territory, which is of vital importance for energy supply not only for Azerbaijan, but also for many European countries including NATO member states and many other political factors make Azerbaijan’s energy infrastructure a potential target for some countries.

Different officials in Iran announced the energy interests of Western countries in Azerbaijan as a main target in case of military intervention to Iran. Another neighbouring country, Armenia, which occupied some part of Azerbaijan for almost 20 years now, remains a member of the CSTO security system with hard security guaranties by Russia.
Any military action in the region would have an impact on production of energy resources, as well as on their export routes, as it was during Russia-Georgia war in August 2008, when all export pipelines in the territory of Georgia were shut down. Therefore, from energy supply security point of view, it is also in the interest of energy consumer countries in Euro-Atlantic region to decrease the possibility of potential military action and potential terrorist attacks to the minimum.

**Recommendations**

_NATO could be important in the protection of energy resources and their transportation routes in the region. Increased level of NATO-Azerbaijan relations from cooperation in the frame of the Partnership for Peace (PfP) program to the execution of Individual Security Agreement would be in the mutual interest of the parties, as well as in the interest of energy consumers in Euro-Atlantic region._

Of course, Azerbaijan’s current geopolitical position, military potential, active foreign policy in the region serves as a strong background for the neutralization of current security threats. But raising security relations (security guaranty) with NATO to higher level can positively influence the security situation of the country. Then the question would be - how those relations could be developed in addition to the PfP program?

It is well known that the corner stone of NATO’s activities - the principle of collective defence from the armed attack stipulated by Article 5 of North Atlantic Treaty applies to the member countries only - “The Parties agree that an armed attack against one or more of them in Europe or North America shall be considered an attack against them all and consequently they agree that, if such an armed attack occurs, each of them, in exercise of the right of individual or collective self-defence recognised by Article 51 of the Charter of the United Nations, will assist the Party or Parties so attacked by taking forthwith, individually and in concert with the other Parties, such action as it deems necessary, including the use of armed force, to restore and maintain the security of the North Atlantic area.” (NATO Handbook, Brussels-2006, p.372). Obviously, realization of the security guarantee in the format of the Article 5 is not realistic for both sides.

Relations with partner countries are regulated mainly under Article 4 of the North Atlantic Treaty – “The Parties will consult together whenever, in the opinion of any of them, the territorial integrity, political independence or security of any of the Parties is threatened.” (NATO Handbook, Brussels-2006, p.372). But “consultations” meant in the Article 4 may not be sufficient for the neutralization of existing security threats in decisive moments.

For this reason, in my opinion, we are in need of the new “Article 4.5” format. This format can be agreed in the mid of existing format between NATO member countries (“an attack against one state shall be considered an attack against all”) and “consultation” format between NATO and partner countries. The new format could be realised by signing an Individual Security (Partnership) Agreement between Azerbaijan and NATO.

_With signing of such agreement Azerbaijan can gain additional guaranties vital for its security, NATO member countries can declare their interests in the security of critical energy infrastructure in the region which are of vital importance for their energy supply, also NATO can seriously restore its weakening positions in the South Caucasus._
References:

2. A. Ciarreta, Sh. Nasirov, Analysis of Azerbaijan Oil and Gas Sector, 2010
4. BP in Azerbaijan Sustainability Report, 2011
5. NATO Handbook, Brussels-2006