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Letter from the Editor

Our dear reader,

Today, we have a small anniversary: the 10th number of our review will be released today. This is some psychological barrier that we have successfully managed to overcome. The number of our readers is growing with every single week and they are everywhere where only people with access to a computer and the computer to electricity. It is equally important if review reader is charged positive energy. The whole of our team is a belief that your positive energy, our dear readers, will help us easily get to the 100th number drawn.

In today's issue Mehmet Seyfettin EROL touched a theme on the current situation in Afghanistan and prospects for Trans-Afghanistan pipeline.

You are able to read comment of Rovshan Ibrahimov about Turkmenistan natural gas reserve capacity and the future of export operations.

Our new author Mahir Aydin wrote about hydroelectric development and added some formulas.

Etem Karakaya summarizes the new initiative in the field of energy by the European Union regarded to the environmental issue.

In his article Haluk Direskeneli outlines the possible construction of Nuclear Power plant in Northern Cyprus.

Also, Serkan Bahceci contributes to this issue with his article about market power monitoring issues.

Lastly, Hasan Selim Ozertem makes a review of oil markets this week.

Rovshan Ibrahimov ,
Editor of USAK Energy Review

Etem Karakaya, PhD
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Change and Energy

Barroso:
*"Europe must lead the world
into a new, or maybe one
should say post-industrial
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*Reliance on imports of gas is
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*'Limiting global climate change
to 2°Celsius'*

*For nuclear energy, the
decision was left to the member
states.*

European Union's New Energy and Climate Change Package

On 10th of January this year, the European Commission proposed the most wide-ranging reform of Europe's energy and climate change policy ever attempted, fundamentally changing the direction in which the Europe is heading. In his press conference, the European Commission chief Jose Manuel Barroso "Europe must lead the world into a new, or maybe one should say post-industrial revolution - the development of a low-carbon economy."

The starting point for this new European energy policy is threefold: combating climate change, limiting the EU's external vulnerability to imported fossil fuels, and promoting growth and jobs, thereby providing secure and affordable energy to consumers.

Europe is becoming increasingly dependent on imported hydrocarbons. According to official estimates, with "business as usual" the EU's energy import dependence will rise from 50% of total EU energy consumption today to 65% in 2030, requiring increased reliance on potentially unpredictable sources. Reliance on imports of gas is expected to increase from 57% to 84% by 2030, of oil from 82% to 93%. Apart from security of energy supply issue, there is also growing concern about the threats of climate change. As confirmed by recent IPCC report, which concludes that 'most of the observed increase in globally averaged temperatures since the mid-20th century is very likely due to the observed increase in anthropogenic greenhouse gas concentrations', the main reason for such GHG concentrations are because of increased use of fossil fuels. As can be seen from both problems, the main solution is to reduce the use of fossil fuels. This interdependence was formally established on 10 January when the European Commission publish both its Energy Strategy and a communication on the EU policy for fighting climate change: 'Limiting global climate change to 2°Celsius'

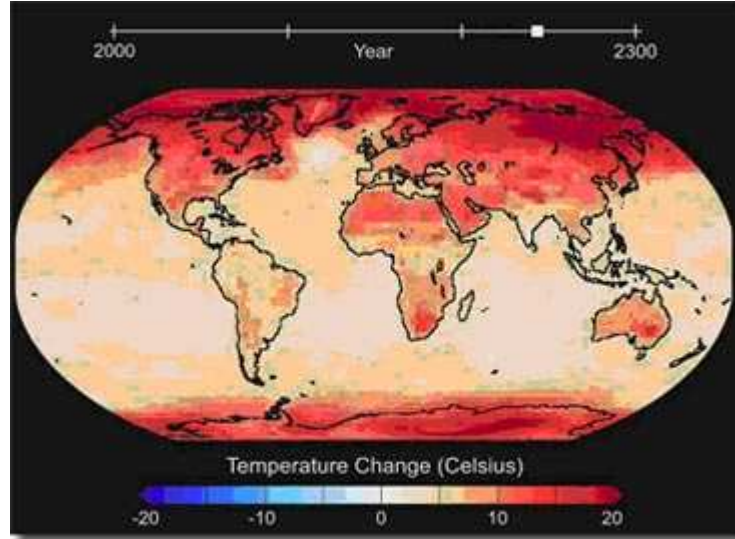
So, in order to achieve these objectives the EU set an Action Plan, which proposed a series of short and long-term targets and measures on climate protection and clean energy. These targets are;

- to reduce, by 2020, GHG emissions unilaterally by at least 20% below the level of 1990. If developed countries (means USA) is willing to participate, the Commission proposed to reduce emissions by as much as 30%.
- 20 % share of renewable energies in overall EU energy consumption by 2020
- 10% minimum binding target for the share of biofuels in overall EU transport fuel consumption.
- to reduce the EU's energy consumption by 20 % through improvements in energy efficiency.

Apart from these targets, a number of other areas of instruments have been identified. For instance, the Commission also wants to make sure all new power stations are carbon neutral till 2020 - they should be built in such a way that carbon can be captured and buried. For nuclear energy, the decision was left to the member states. Emission trading is believed to have a central role in achieving these objectives.

..The main aim here is not to fundamentally revise the manner in which energy is used but rather to invest massively in new energy technologies like renewable sources for electricity and heating, biofuels, especially second-generation ones, carbon capture and storage) and infrastructure (interconnections, external supply routes).

As can be seen, the main aim here is not to fundamentally revise the manner in which energy is used but rather to invest massively in new energy technologies like renewable sources for electricity and heating, biofuels, especially second-generation ones, carbon capture and storage) and infrastructure (interconnections, external supply routes).



After initiating these proposals, there were very intense debates in Europe from all stakeholders before European leaders meeting at 8-9 March 20, European Council Summit. Debates mainly focused on two issues; the binding or optional nature of the objectives for renewable energy and biofuels and burden-sharing by the EU member States. While mainly developed countries (Germany, the UK, Denmark, Sweden, Luxemburg) strongly insisted on binding targets, mainly new members (Poland, Czech Republics) opposed to that as it might affect their development processes.

Finally last Friday, at European Council Summit, the European Council has endorsed all the proposals put forth by the European Commission (EC) in its energy and climate package, presented on 10 January. Whether to make a target for increasing the share of renewable energy binding or not was the most contentious issue at the summit meeting. Leaders finally agreed to set it as binding, providing it is shared "fairly and equitably" between countries, and takes into account different national "circumstances, starting points and potentials".

Now the European Council has made its decision, it is up to the European Commission to prepare legislation based on the European Council's decisions. It is also Commission's job to sort out how the reduction burden will be shared between member states.

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In this piece, I will try to summarize the market power monitoring issues, specifically in electricity industry

In electricity systems, there are four simple functions: generation (production), system operations, transmission, and distribution.

I will focus on the generation function for which the ultimate aim is to have a competitive industry with all of its benefits: lower prices, environmentally friendly and efficient production, reliability, and predictability.

Enforcing competition in electricity generation – an introduction

The important point is, as in any industry – network or not – overall competition is not trivial to get. Some producers might end up having significant market power and they might be inclined to abuse their market power to push prices upwards of the competitive levels. In this piece, I will try to summarize the market power monitoring issues, specifically in electricity industry. My hope is that since it is early periods of Turkish liberalization effort, the market that is going to be created would obey simple principles and be competitive.

There is a good reason why widespread liberalization in network industries started very late compared to others. By a network industry, I mean one that requires a physical network to provide the good or the service to the end-users, such as the electricity grid, land-line phone system, cable television, or water and natural gas pipelines. Such industries were long considered as “natural monopolies” due to the enormous economies of scale networks carry. The initial investment is expensive and it does not make too much economic sense to build two or more competing electricity transmission systems.

The liberalization effort has mostly started after the realization that a network industry can actually be unbundled. While the actual network – that requires to be a monopoly – continues to be regulated, the supply of the product can be handled by competing entities. In electricity systems, there are four simple functions: generation (production), system operations, transmission, and distribution. Transmission and distribution are for the transportation of electricity from the generators to end-users: transmission lines carry a large amount of power and serve large areas, distribution lines are local.

Competition in the electricity industry generally means competition only in the generation function and to a certain extent wholesale and retail trade of electricity that emerges as a result of a competitive generation base. As mentioned, transmission and distribution cannot be competitive since they are natural monopolies – everyone has to use only one set of lines. So these two functions have to be regulated. System operations function also has to be a monopoly, since the operator must control the dispatch of all generation units in a control area, or the system would not function.

Before going too much in detail for the three – must be regulated – functions of an electricity system, I will focus on the generation function for which the ultimate aim is to have a competitive industry with all of its benefits: lower prices, environmentally friendly and efficient production, reliability, and predictability.

What is market power?

The classical definition of market power is the ability to profitably cause prices to diverge from competitive levels over a sustained period of time.[1] This definition underpins practices of regulators worldwide such as the European Commission and the US Department of Justice and Federal Trade Commission. [2] However, to apply this classical definition, we must first define the relevant market, and then determine what constitutes a competitive price level. In Turkey, for instance, the electricity market can be defined geographically as consisting of the whole country, or can be divided into parts according to the transmission constraints. Competitive price levels must be defined relative to long run marginal costs, which can be defined based on prices needed to remunerate a new, low load factor peaking facility.

Defining the market

A rigorous market power analysis first and foremost requires the definition of the market in question, in order that all competitors be identified and included in the market power test. Market boundaries need to be established based on the potential for substitution. To the extent there is demand or supply-side substitution (or the potential for such substitution) between certain goods and services, these related goods and services should be considered as part of a single market. The method most commonly used by practitioners to define markets is commonly known as the SSNIP (Small but Significant Non-transitory Increase in Price) test, which analyzes whether a hypothetical monopolist with control over a certain product or service in a certain area can profitably impose a price increase of 5% to 10%. A hypothetical monopolist will be able to do this if and only if:

- customers do not switch in sufficient quantities to substitute or close substitute products; and
- other suppliers do not sufficiently increase supply.

If either of these outcomes occurs, then the attempted price increase will be defeated, and the hypothetical monopolist does not have market power, and thus we can conclude that the products and services over which the hypothetical monopolist was deemed to have control do not constitute a distinct market. The SSNIP test thus involves an iterative process, where we expand the sphere of influence of a hypothetical monopolist until we have exhausted all substitutes that would frustrate his market power potential.

The classical approach to market definition, consistent with that used in most merger and anti-trust cases by the competition regulators in the world, describes the market across four dimensions: time, geography, function and product. There is generally no debate regarding functional dimension: most agree that we should analyze the wholesale electricity market. However, the other three aspects can be more challenging to delineate.

The classical approach to market definition, consistent with that used in most merger and anti-trust cases by the competition regulators in the world, describes the market across four dimensions: time, geography, function and product.



Product dimension: The boundaries of a market should be determined on the basis of substitutability. A market should incorporate all products and services that consumers view as substitutes and that producers can readily supply, without additional capital investment. In other words, all products where buyers can switch to a substantial degree from one source of supply to another and

sunk costs are truly part of the same market.

It is generally accepted that there is one relevant product from the consumers' point of view and that product is energy. Ancillary services markets, if any, are considered secondary to the energy market. It is important that the product dimension should include at a minimum both the spot market and the near term forward market.

Geographical dimension: Electricity markets are normally bounded by transmission constraints, rather than political or regulatory jurisdictional borders. Turkey is unique in that its market, due to the transmission system, very closely mirrors country's boundaries. Electricity generally flows from the low-demand eastern part of the country towards the high-demand west. A consumer can generally contract with any generator in the country to meet his or her electricity demand, meaning the presence of sub-markets is limited.

Time dimension: The time dimension is another important characteristic of the defined market. As with the product definition, the time dimension of a market should be defined on the basis of substitution and switching possibilities. The fact that the frequency of transactions can be hourly does not necessarily mean that this interval should be considered as the appropriate time dimension of this market. Each trading interval is not a distinct market, because if a firm tried to monopolize an hour, its bids would incite more participation from other suppliers in that hour and in subsequent hours and thus prevent the monopolization from taking place.



In addition, many electricity products are sold on a longer term basis than an hourly interval. As such, the time dimension of market power analysis can not be limited to an hourly or even a daily interval, but rather that it should incorporate an assessment over a longer term horizon. The applicable time dimension for market power diagnosis and mitigation is likely one to three years, based on the amount of time in which demand could respond (due to delay in switching out of contracts). This is further supported by the timeframe necessary for new entry of various types to enter the market and discipline the monopolist.

power markets must retain reserve capacity to deal with unanticipated changes in supply and demand

Markets need to provide for recovery of long run marginal costs

In order to diagnose market power, it is important to determine competitive price levels. Classically, a competitive market is one in which prices equal marginal costs ($P=MC$). However, the appropriate measure of marginal cost for market power definition needs to be consistent with the time dimension of the market. Economic theory differentiates between short-run and long-run marginal costs. While short run marginal costs (SRMC) merely consider the variable components of the total cost function (and indeed regulators often fail to incorporate key components of SRMC, such as the cost of emissions credits in

countries that Kyoto Protocol is ratified), long run marginal cost (LRMC) refers to the cost of providing an additional unit of a good under the assumption that doing so requires investment in capacity expansion. The theory of perfect competition suggests producers stay in the industry if they are covering SRMC in the short run but for equilibrium in the long run LRMC must be covered. The four defining characteristics of electricity as a commodity product requires recovery of long run marginal costs rather than the short run marginal costs:

1. demand for electricity, which is actually a derived demand for all goods and services that use electricity, is highly inelastic in the short-term;
2. demand is very volatile across time, e.g. peak versus off-peak periods within a day, weekdays versus weekends, seasons within a year, etc.;
3. electricity is very expensive to store[3]; and
4. the market rules operating in many markets enforce linear pricing.[4]

Effectively, equating market power with market power abuse is akin to saying that ownership of a gun automatically results in the commission of murder.

As a consequence, power markets must retain reserve capacity to deal with unanticipated changes in supply and demand; they cannot carry inventory in the form of stored electricity. The stock of installed generation capacity is inevitably fixed in the short-term. That is, there are short-run barriers to entry into generation, so short-term shortages of supply for whatever reason are likely to cause high prices. Because demand is inelastic in the short term and prices must be sufficient to ensure the continuity of supply, large changes in price are required to either remove demand variation, or to match demand to supply when supply shortfalls occur.

The variability of demand and the needs created by instantaneous consumption requires construction and maintenance of low utilization peaking plant. These plants have substantial fixed costs that must be recovered from the market. Since the market rules constrain linear pricing, it follows that those linear (uniform \$/MWh) prices must be sufficient to cover both the fixed and variable costs of supply.



The bottom-line for competitive electricity markets is that marginal revenue (i.e. price) equals marginal cost, where costs are appropriately specified over time: market prices in the real world must rise above the short run marginal cost of the most marginal viable generator in order for that generator to cover its fixed costs. Indeed, given the large sunk costs of generation, these oscillations in market prices around a long-run equilibrium price may be substantial and prolonged.

Having market power is different from abuse of market power

The ability to exercise market power does not necessarily mean that it is going to be exercised. Taking economic theory at its face value and conclude that a

profit-maximizing firm will definitely abuse its market power is a short-sighted statement. Effectively, equating market power with market power abuse is akin to saying that ownership of a gun automatically results in the commission of murder.

First, contract positions matter more than the ownership structures. Market participants which have balanced or net short positions have little or no incentive to attempt to drive up prices. Indeed, such firms should not be assumed to have market power at all as long as they maintain their contract positions.

Second, even a profit maximizing producer might refrain from abusing its market power in the short term, given the potential long term consequences; increasing prices can provide a signal for entry which in turn would diminish the ability of the dominant firm to exercise pricing control in the future.

Third, “profit maximizing” is not the same as “law breaking”; there are many ways that large companies could illegally increase their profits, but they generally do not do so – there is no more reason to believe that a dominant firm will automatically break competition laws than there is to assume that it will break any other kind of law.

Footnotes:

- 1- See S. Stoft (2002) “Power System Economics: Designing Markets for Electricity”, IEEE Press, p. 318.
- 2- U.S. Department of Justice and Federal Trade Commission, Horizontal Merger Guidelines § 0.1 (April 2, 1992).
- 3- The only viable example is the pumped storage technology, which allows for the effective “storage” by allowing suppliers to consume electricity at one point in time in exchange for the opportunity to produce electricity at another point in time. Under most market conditions, construction of a new pumped storage unit, especially in the short run, is prohibitive given the capital outlays required.
- 4- Under linear pricing, firms that operate in the market are forced to recover all their costs from simple single part tariffs. Non-linear tariffs include, for example, tariffs with volume-related discounts, and two part tariffs that often comprise fixed (volume-insensitive) and variable components. Wholesale electricity markets effectively force linear tariffs by requiring market participants to submit offers into the spot markets that are all denominated in a \$/MWh price. It is important to note that the linear pricing rule cannot arbitrarily be replaced by a different rule that would foster non-linear tariffs and therefore allow short-run pricing based on short-run marginal costs. Rather, the linear pricing rule is fundamental in allowing at low costs the multitude of real-time trades necessary for matching supply and demand to take place.

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Effectiveness and Efficiency in Hydroelectric Development

There are two popular words in the business world associated with decision making: “Effectiveness” and “Efficiency”. Effectiveness means “doing the right things” while efficiency implies “doing things right”. We look for effectiveness in major decisions. Then efficiency takes over in deciding the tasks to execute work. Successful investment in development of a hydroelectric plant with good financial returns and minimal environmental impact is a prime example of effective decision making. Once the plant is in-service, achieving optimal production levels with the available resources verifies the efficient operation.

When the demand for electricity increases, the first thought comes to mind of many decision makers is to invest in new generation. Opening ceremonies are great photo opportunities for executives and politicians. However, investment in new facilities without first trying to make the best use of the existing resources is a sign of irresponsible corporate management.



In the hydroelectric business, the plant capacity, annual energy and revenue are defined as follows:

Capacity (MW) = Efficiency coefficient x Flow (m³/s) x Head (m)

Energy (MWh) = Capacity (MW) x Operation hours in a year (hr)

Revenue (\$) = Energy (MWh) x Power Purchase Price (\$/MWh)

As seen from these relationships, the plant operation staff should consider the following in order to increase production:

- (a) Maximizing the flow available for production by detailed forecasting of the hydrological conditions (e.g., precipitation and snow pack), operating all the facilities on the same river system in a cascading scheme and eliminating the flow leakages (e.g. around the sluiceways). Global warming is expected to increase the average air temperature and evaporation from the reservoirs. The challenge lies ahead for future decision makers is to develop and implement technologies to reduce evaporation and increase precipitation. One possible solution is to utilize cloud seeding. For example, Idaho Power (USA) reported that they were able to increase the precipitation in winter months by up to 9% between 2003 and 2005 by spraying the clouds with minute silver iodine particles. Their target for the coming years is 15%.
- (b) Maximizing the head by reducing the hydraulic losses (e.g., debris blockage at trashracks, bottleneck in the river and vortices due to butterfly valves).

- (c) Maximizing the efficiency coefficient: This coefficient represents the efficiency of the electro-mechanical equipment and is determined from performance testing. Lack of updated performance characteristics is usually the main cause of sub-optimal operation of the generating units. The performance test is usually part of the plant commissioning activities prior to commencement of commercial operation. Although, performance tests are recommended to repeat every 15-20 years to account for the effects of wear-and-tear they are usually ignored until a major overhaul or runner upgrade. Hydro Quebec in Canada is one of the largest power producers in the world. In spite of their historical leadership in hydroelectric research and operation, the company was still able to identify generation-related energy losses of about 4% in the mid-1980s, costing roughly \$150 million annually. The losses have been reduced by about 65% through the development of an advanced water management system.



Of course revenue optimization is not the only consideration in hydroelectric business. The plants should be operated in full compliance with environmental and dam safety guidelines.

In conclusion, decision makers should first explore the possibility of increasing the efficiency of existing generation plants before considering costly investment in new generation facilities. This is the shortest path to attaining sustainable development.

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Post-Turkmenbashi Turkmenistan: Reburning of the Gas Related Games

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The high quality of the gas produced in this state, in which virtually no sulphur, carbon dioxide, has been particularly attractive for industrial and commercial areas of the economy of the former Soviet Union

The main production area of natural gas is East Turkmenistan, which has an area of 180,000 square. km.

Turkmenistan exports its gas through pipelines to Iran, and through Kazakhstan to Russia

Following the death of the leader of Turkmenistan Saparmurat Turkmenbashi discussions about possible development scenario of Turkmenistan is one of the key issues of concern to many specialists in international relations. Being of the major exporters of gas in the Eurasian region this state during the period of the rule of Turkmenbashi has got several long-term agreements concerning supplying of the natural gas.

In particular, there is 25 years contract with Russia and 30 years with China. These countries primarily interested in whether the change of government, the continuity in the performance of their duties in accordance with the signed agreements. In addition to these states, the European Union is also interested in supplying of gas to their home countries and has increased lobbying project of NABUCCO pipeline and almost forgotten Transcaspian pipeline project.

There raise a question of who will be the principal purchaser of gas in Turkmenistan, because maybe some of the causes response to the issue could play a crucial role in the distribution of gas resources in the Eurasian space. As the leading sector of the economy of Turkmenistan, the gas industry has been built on 1960-ies. The high quality of the gas produced in this state, in which virtually no sulphur, carbon dioxide, has been particularly attractive for industrial and commercial areas of the economy of the former Soviet Union. Since its independence, Turkmenistan has provided gas production in its territory mainly their capabilities. In exploration and production mainly in the state-owned companies as Turkmengeologia, Turkmenneft and Turkmengaz which has produced about 80% of the total gas production in the state.



The main production area of natural gas is East Turkmenistan, which has an area of 180,000 square. km. In this region, a number of fields, among which are the deposits such as Dovletabad with stocks, according to some estimates, consist about 4.5 trillion. cubic meters. However, the exact figure on the availability of gas, both in this and other fields is not possible since there is no possibility of monitoring by independent experts. There are reports that large gas deposits also exist in Malay, Shatlyk, Odjak, Samantepe etc.

Another large hydrocarbon deposits existed in the south-east in Mary province. This gas reserve could be exploited

within 15-25 years. There are deposits of gas and in the western part of Turkmenistan. Some oil and gas fields available in the Turkmen sector of the Caspian Sea. According to official sources nowadays Turkmenistan may supply

gas to 220 million cubic meters per day.

So far, in addition to domestic consumption Turkmenistan exports its gas through pipelines to Iran, and through Kazakhstan to Russia. In 2005, it signed an agreement with Russia on the supply of Turkmen gas in the country within 25 years. Another agreement was reached on the construction of a gas pipeline to China, which over a period of 30 years would allow the export of gas annually in the amount of 30 billion cubic meters. Gas here will come from the recently discovered deposit Iolotani gas reserves, where accordingly to the Turkmen sources reach 1.7 million cubic meters. Negotiations are under way for the signing of a similar agreement with India. With this agreement also planned pipeline construction the capacity of which is planned to reach 33 billion cubic meters.

The main consumers of natural gas are Iran, Russia and Ukraine

The main consumers of natural gas are Iran, Russia and Ukraine. In 2006 to the markets of these states have been exported 45.5 billion cubic meters of gas. Most of part of this gas has been purchased to Ukraine via Russian pipeline, the remainder Russia by Gazprom and Iran. Volumes of gas from Turkmenistan each year continues to grow. For example, in 2007 only in the direction of the Iranian plans to export up to 14 billion cubic meters of gas. The talks between Gazprom and Turkmenistan on the delivery by this state in Russia 50 billion cubic meters annually within three years.

Currently, the share of foreign companies in mining Turkmen gas does not exceed 10%.



There is also a capability for the production of LNG, the demand for which in world markets has never stopped growing. Thus, Turkmenbashi KNPZ and Naip gas refinery set of a year, on average, is 400,000 tons of liquefied gas. It is expected that by 2020, LNG production will reach 2 million tons per year. To date, the LNG is exported to Iran, Afghanistan and other countries in the region by rail. It is planned to export to the Far East through sea transportation route. This port Kianla started on the construction of a terminal for the storage and shipment of LNG in the Caspian seaside states, and from there to Europe.

However, implementation and enforcement of much natural gas should be clearly defined to Turkmenistan to perform functions under the treaties. Indeed, in the view of many experts are skeptical that Turkmenistan will be able to provide all of the requisite number of gas. In the first place, because it is difficult at this time to estimate the growth in real production in the country. Thus, some experts believe that in 2010, gas production will remain at current levels, although so far Turkmenistan will have to be much more gas for export, or some arrangement would simply is not feasible. Anticipating this, Russia has already taken some steps to the responsibilities for the supply of gas to the country, where a new leader of Turkmenistan Gurbanguly Berdimukhamedov again gave assurances to Prime Minister of Russia Fradkov during his visit to Ashgabat in February in this year. If the expectation about lack of necessary volume of gas will be confirmed there would be nothing to Turkmenistan to export to China. In

this case, Russia will be double winners, as a country that has access to Turkmen gas, and as the only gas exporter to China.

The solution to this problem may lie in direct investment in the gas industry of Turkmenistan, on the part of China. The same applies to Europe, which would provide an alternative route directly, bypassing Russia through Transcaspian pipeline and by the NABUCCO pipeline with exemplary route Asia-Azerbaijan-Georgia-Turkey-EU to import Turkmen gas. Currently, the share of foreign companies in mining Turkmen gas does not exceed 10%. However, after the death of Turkmenbashi current government may revise their views on the opening of its economy to foreign capital and foreign companies will be able to increase gas production to the levels required for its exports.

Transcaspian pipeline and NABUCCO may prove costly empty undertaking some of which include political risk in constructing them through the unstable region

However, there is another problem, which could impede the implementation of these projects. So far, there is no accurate information on actual holdings gas deposits in Turkmenistan. The widely divergent, in the view of some experts think gas reserves in Turkmenistan is much lower than the official sources. In this case, the multi lines initiatives which are included Turkmenistan-China, Turkmenistan-Afghanistan-Pakistan pipeline, Transcaspian pipeline and NABUCCO may prove costly empty undertaking some of which include political risk in constructing them through the unstable region. In this case, it is in the interest of Turkmenistan to allow independent experts to audit their deposits in the identification of unknown reserves of the natural gas.

For evidence of the high amount of resource, Turkmenistan should find ways to break the isolation of economic sanctions and declare open regime to foreign investment. Otherwise, the country may be in the very near future the main source of instability and a threat to security within the country and the region as a whole. And in this case it will be a very difficult to predict what kind of developments will be followed. But is a clear that the outcome will have a negative effect on the entire surrounding region.

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Nuclear Power Plant in Northern Cyprus



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Energy Analyst

Should we consider a serious decision whether to invest in a Nuclear Power Plant at Northern Cyprus?"

Hybrid design which combines solar and wind energy generation for household applications can easily be widely applied on our south sea coast dwellings

In the all Mediterranean sea coasts, there is a high potential of wind energy resources so that energy can also be utilized a renewable green alternative

On 16th Jan 2007 Tuesday evening, we are invited to attend a seminar in British Council Ankara office. Seminar was named as "Café Scientific" discussions on environment issues to continue with a video conference on Climate Change and Urban Issues. Seminar was very informative.

We had link with the other groups and via video conferencing, and the key speaker Mr Bill Dunster from the ZED Factory in UK who had led the discussion between Turkey, Austria and the UK.

In Ankara British Council Conference room we were about 30 people mainly from Academic circles as well as interested public and private enterprises.

On the big screen, Austrian Planet Architects pointed out low energy consuming passive house design superimposed solar and wind energy for their own consumption. That is to generate hot water for household consumption, and district heating, lighting, and its heat is stored underground by heat pumps.

Austrian colleagues advised the low availability of the energy generation in the system plus high cost of glass applications. The architectural design was exceptionally very good. We all appreciated the design idea and the beauty of the design which was combination of 3-bedroom house complex self sufficient in energy generation by solar and wind sources installed nearby.

We feel that this design can be applicable on Turkish Aegean and Mediterranean coasts. Moreover we know that there are applications in the Northern Cyprus in summer houses of British expatriates.

That hybrid design which combines solar and wind energy generation for household applications can easily be widely applied on our south sea coast dwellings.

That brings also a question if we should also consider a serious decision whether to invest in a Nuclear Power Plant at Northern Cyprus?"

We can ask if Turkey has technological capacity to construct and operate a Nuclear Power Plant? Turkey has that technological and commercial capability.

As a matter of fact Turkish intellectual capacity is always underestimated/undervalued.

However we all know that Turkish university graduates are not less qualified than their counterparts in the leading industrial nations nor less than leading US or European graduates of their elite universities.

Turkish scientific and technical capabilities are of high quality since we know that there are many high profile posts already occupied by Turkish University graduates, not to mention only in nuclear power field but also in other technical expertise.

We can also expect that METU Northern Cyprus campus can be a good opportunity to support and initiate the nuclear facilities in the North.

There is almost no fossil fuel resources; no oil, no gas, no coal in the Northern Cyprus. Hence all fossil fuel should be purchased abroad and to be transported by sea ferries to the power plant.

We are now in the 4th generation nuclear technology with maximized security and minimized waste. So for Northern Cyprus, nuclear technology is within reach of reasonable local financing.

On the other hand as in the all Mediterranean sea coasts, there is a high potential of wind energy resources so that energy can also be utilized a renewable green alternative.

We should also evaluate what sort of prestige we may expect from a Nuclear Power Plant in Northern Cyprus.

The level of development in your own country in Nuclear technology will obviously warn other parties that you are no longer at the vulnerable developing stage but in the high tech league. That has also a deterrence factor for the rival parties to think twice for any action they take against yourselves.

Let us evaluate why we should consider to construct a Nuclear Power Plant in the Northern Cyprus. We can consider because it is within the economic/ financial capacity range. Necessary capacity is medium size, feasible/ easy to finance. Northern Cyprus does not need big amount of electricity generating power plants.

We are now in the 4th generation nuclear technology with maximized security and minimized waste. So for Northern Cyprus, nuclear technology is within reach of reasonable local financing. There is availability of various technologies, small/ medium and reasonable size between 50-100 MWe.

Nuclear power plants are basically a kind of improved thermal power plants. There is one cycle more. You have to employ high safety measures, and solve waste problem.

There are news that Russia has even plans to sell/ export many 50 MWe capacity nuclear power plants on offshore barges.

We may ask the further advantages of a nuclear power plant in energy security. It is good test to train your people on nuclear technology, on nuclear safety, on nuclear awareness.



We also need to learn the incentives legislation of European Union on renewable as well as nuclear energy, although we need some time 20-50 years to join EU at this pace

By being an anti- nuclear activist, you cannot learn details of the technology. You learn by doing as elsewhere as always.

We should also appreciate that nuclear technology is a very dear, very

precious, very expensive issue. It is not free of charge. It is not even possible to get only with bare money as in the case of thermal power generation.

You can only get it through your own hard work by employing your young talents with their latest scientific and intellectual capability on a long tedious journey with blood, sweat and tears.

It is also a matter of survival of the fittest in the region.

When we come to evaluate the cost factor, in base monetary terms for a nuclear power plant within range of 50 to 100 MWe, you should pay at least 2000 to 2500 USD per kW power generation if you purchase direct from abroad plus together with concessions you pay on your foreign policies.

Construction period varies between 10-20 years depending on finance, technology chosen and other unforeseeable parameters. Anyhow you should start from somewhere.

Overall in Turkey, electricity generation and obviously the average consumption is approximately less than 2000 kwh per person per year



If you do not wish to give any concession in your foreign policy, then you should depend on your own talent at a lower and independent cost. You can only get it through your own hard work by employing your young talents with their latest scientific and intellectual capability.

Hence we also need to learn the incentives legislation of European Union on renewable as well as nuclear energy, although we need some time 20-50 years to join EU at this pace. Anyhow information on EU's incentive legislations will help to spread the design application at our end.

The world has a lot of coal, but right now carbon capture and sequestration is not commercially viable. Natural gas has national security implications and does emit CO2.

We also need to know "Carbon Energy Mortgage system" which is popular application in Austria for construction of such energy efficient solar houses. We understand that governments are to make necessary incentive procedures so that people makes the necessary investments and change their life style solar/wind renewable efficient, less generation of fossil fuels, and which lead us less carbon emission.

However our main problem in Ankara is country's low quantity of electricity generation.

Overall in Turkey, electricity generation and obviously the average consumption is approximately less than 2000 kwh per person per year, whereby in Europe (also in UK and Austria) that figure is around 8,000 to 9,000.

Therefore Turkey needs more power plants to generate more electricity, provided that the power plants are evenly distributed as thermal, renewable hydro, wind, solar, and also nuclear.



Energy Review

Issue : 10
Date: 12.03.2007

<http://www.turkishweekly.net>

"If one side in a conflict goes nuclear, the other is bound to follow suit"
David Hirst, Tuesday April 4, 2006 The Guardian

Hybrid Solar/Wind House. Is it cost effective? Is it cheap? Cost is directly related with wide application of the passive houses. The more you use/ apply, the cheaper they are.

The design is based on hybrid solar and wind energy generation, but energy availability is not so high. In any case we are dependent on the main utility power generation on base load whether it would be gas/oil/coal fired thermal power plant or a nuclear power plant.

However we all agree that increased energy efficiency is the most cost effective and environmentally benign energy option and should be implemented first.

The world has a lot of coal, but right now carbon capture and sequestration is not commercially viable. Natural gas has national security implications and does emit CO₂.

Sometime someone will win Sir Richard Branson's US \$25 million prize for developing a technology to cost effectively remove CO₂ from the atmosphere.

Until then,

"If one side in a conflict goes nuclear, the other is bound to follow suit"
David Hirst, Tuesday April 4, 2006 The Guardian

Your comments are always welcome.

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Afganistan toward a new age and the future of Trans-afghan Pipeline (I)

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In Afghanistan, the security and stability problems are growing day by day as the Taliban increases its influence and the attacks ascend.

Afganistan has been the first address of the global power struggle after 9/11. In the country, the security and stability problems are growing day by day as the Taliban increases its influence and the attacks ascend. The current trend foresights that the nation building targets are far away from the initial intentions. In this framework, most of the proposed projects have not been realized. One of them is the Trans-Afghan Project which is a big question mark.

For further discussing the future of this project and to find answers, firstly, an understanding of the current situation, the reasons behind the problems and the extent of internal and external dynamics' affects on the process is needed. Therefore, in this commentary a brief snapshot of the current situation will be given. In the next one, the rivalry after the US invasion, the search for balance and the position of Afghan groups will be examined. Afterwards, the future of Trans-Afghan pipeline project will be investigated through the current developments.



Definitely, there are many factors affected in the troubled atmosphere of Afghanistan. Principally, the US's internal and external political crises have an important part in this unrest in the Afghanistan unrest. US is behind the schedule, in terms of targets and aims she promised initially. Also, Iraq's shadow falls on "the second class" Afghanistan. This policy is the result of US's voluntary intention.

The Taliban, the exploitation of opium production and trade with the US invasion has turned Afghanistan into an arena for international mafia.

Another problematic dimension of the whole picture is the US's liquidation of the internal dynamics and the resulting "angry/offended" group in Afghanistan. Accordingly, the groups who initially supported US, especially Northern Alliance are regretting their support and trying to participate in the newly forming equilibrium.

New development, the ethnic groups isolated from the system, the return of ethnic discrimination and the Pashtun dominance is easing the work for those groups and their leaders.

Also after the Taliban, the exploitation of opium production and trade with the US invasion has turned Afghanistan into an arena for international mafia. Another interesting point is the usage of American army helicopters in the opium trade. Because US has an active role in this process, there is no need to further discuss the Afghan leadership's inability and weakness.

The enthusiasm and support of the international community has been diminished substantially since the first days of the invasion. Besides the failure in sustaining stability and security is also nurturing the ground for Taliban's stronger than before



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In this process, the US's provocation of problems between Pakistan-Afghanistan and Pakistan-India are indicating the other dimension of the picture

comeback. US has reasoned her invasion to finish Taliban and capture Bin Ladin, now the belief in US's ability to achieve this has been damaged. Also, the attacks of US soldiers result with civilian casualties and house bombings are adding up to the tragic side of the whole picture. There is an open disappointment towards Western allies, especially US, among Afghan public. As a result, there is an ever increasing feeling of reaction against invaders.

On the other hand, the support given by the countries of the region including Iran to US has disappeared now. On the contrary, these countries are supporting all sorts of anti-US formation including Taliban. Taliban's sophisticated arms and increasing dominance are an indicator of this. The future is not bright and the Iran and Russia's pulling back of their initial support combined with the Pakistan's return to Taliban are dimming the hopes.

Hence, the developments happened since the invasion of Afghanistan till now, has prepared the under work of a new Afghanistan centered regional competition. In this process, the US's provocation of problems between Pakistan-Afghanistan and Pakistan-India are indicating the other dimension of the picture. These operations may be perceived as the US strategy to prolong her settlement in the region and turn the region in to a fireball, but the end results may be quite different than expected outcomes.

In our next commentary, this new era of competition, the actors and the preferences of the Afghan groups in this new formation will be investigated and the analysis from the perspectives of Trans-Afghan project partner countries will be discussed.

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Oil Markets - This Week

Oil Markets: Nationalization in Venezuela and OPEC Meeting in Vienna

Hasan Selim Ozertem

USAK's Energy Expert

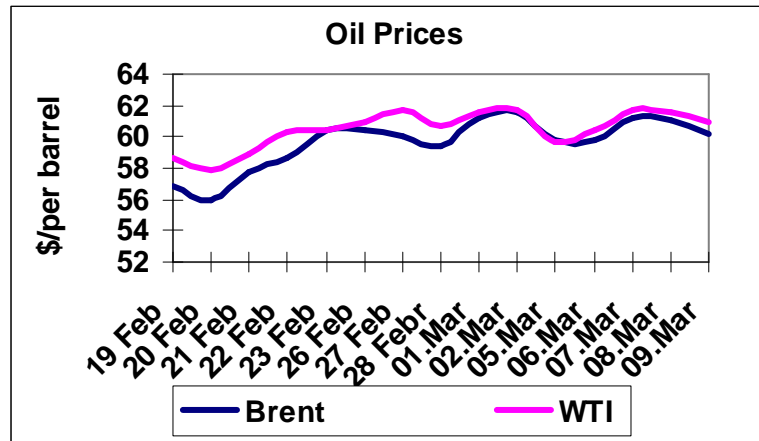
When compared with previous weeks, this week was so quiet for the oil markets. In previous weeks there were problems of Iran, weather conditions, OPEC decisions etc.

Chavez government made deals with Total and BP for the compensation of seizure of Jusepin oil field in 2006.

However, this week's important event can be stated as the steps taken in Venezuela for the nationalization of Venezuelan oil. In this framework, Chavez government made deals with Total and BP for the compensation of seizure of Jusepin oil field in 2006. The compensation paid will be in oil not in cash. Moreover, ExxonMobil has agreed to cede the control of Cerro Negro heavy oil project by May, 1.

On the other hand both prices of Brent and WTI decreased slightly this week. As known the tension increased last week due to the dispute between Iran and the US. However, expectations turned to positive after the news about warming weather in the US. In the end of this week the closure was around \$60.5 for WTI whereas \$60.22 for Brent oil.

ExxonMobil has agreed to cede the control of Cerro Negro heavy oil project by May, 1.

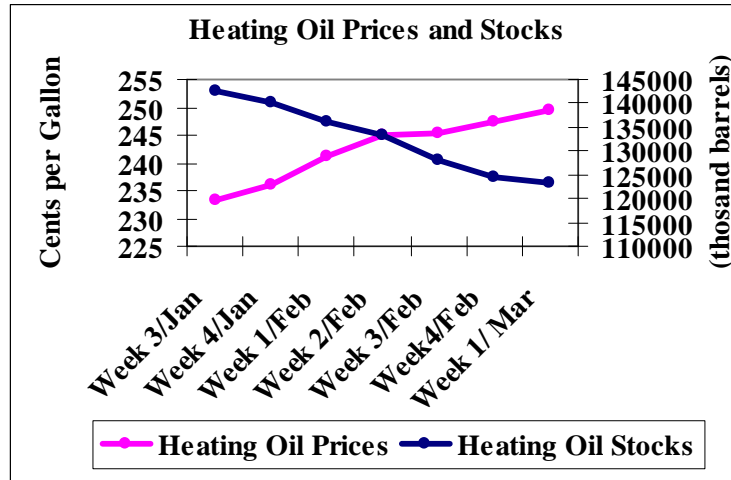


The negative relation between decreasing stocks and increasing prices in heating oil preserves its trend

Source: Financial Times

Moreover, the negative relation between decreasing stocks and increasing prices in heating oil preserves its trend. As can be seen from the below graph the distance between the two line becomes wider every passing month. The retail price of heating oil became \$2.49 per gallon and stocks declined for about 1.3 million barrels in the US markets.

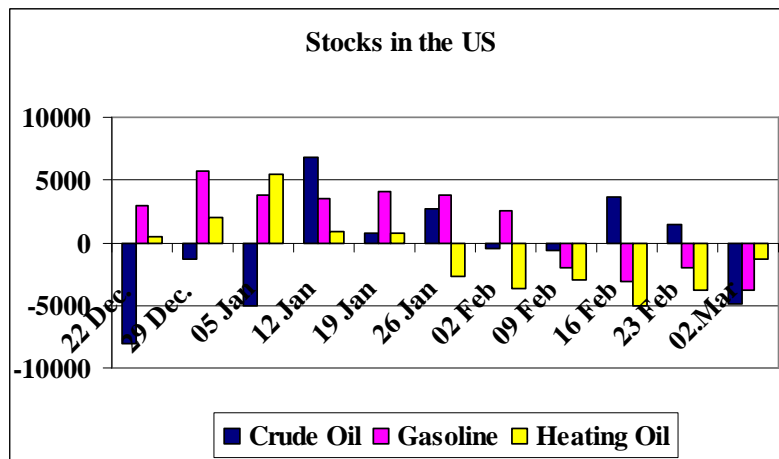
In the first week of March the stock values in the US declined not only in heating oil, but also in crude oil and gasoline.



Source: Energy Information Administration

In the first week of March the stock values in the US declined not only in heating oil, but also in crude oil and gasoline. The decline was 3.75 million barrels in gasoline and a drastic decrease, 4.85 million barrels in crude oil.

In this week's agenda there is an OPEC meeting in Vienna on 15th of March. A new cut is not expected for now.



Source: Energy Information Administration

In this week's agenda there is an OPEC meeting in Vienna on 15th of March. A new cut is not expected for now. The price level seems stabilized in the band of \$55-\$65 and everybody more or less happy with these levels when compared with this summer's high prices. On the other hand, unfortunately the dispute between the US and Iran has not been resolved yet and the US insists for further sanctions against Iran in UN's Security Council.

According to a Bloomberg's Survey 13 of 40 analysts expect a price rise while 9 of them expect oil prices to decrease and the rest is neutral about oil prices this week. Mark Shenk from Bloomberg claims that according to the US National Weather Service, the temperatures will be above normal from March 14 to March 22.

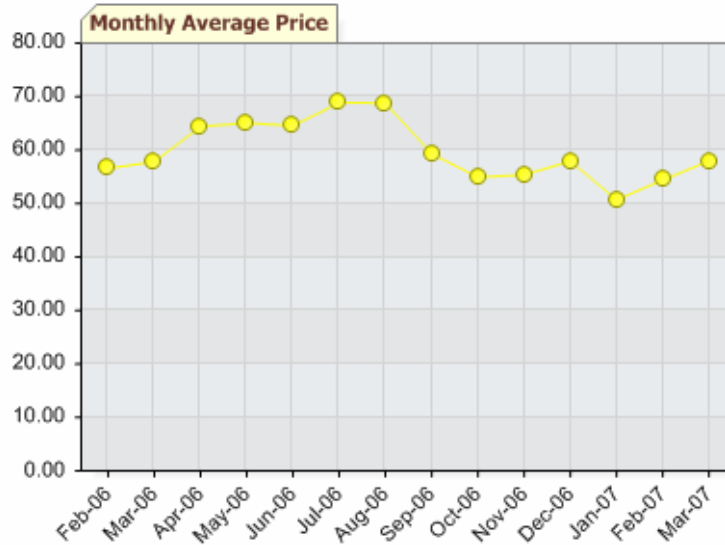
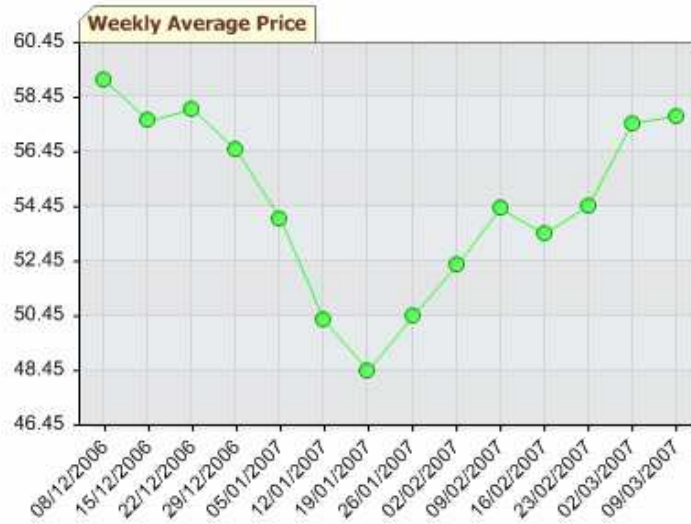
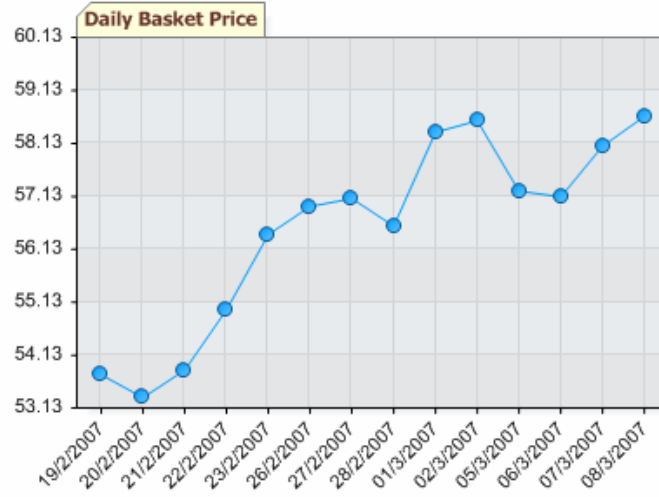
References:

Shenk, M. *Crude Oil May Hover Between \$61 and \$62 Next Week*. Retrieved from: <http://www.bloomberg.com/apps/news?pid=20601072&sid=aakEDALPoF28&refer=energy> on 11 March 2007

For your comments;
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Indicators

OPEC's Basket Price



Indicators

Indicative Exchange Rates Announced at 15:30 on 09/03/2007 by the Central Bank of Turkey

CURRENCY		EXCHANGE RATES		EXC.RATES ON BANKNOTES	
		Buying	Selling	Buying	Selling
USD/TRY	1 US Dollar	1.4138	1.4206	1.4128	1.4227
EUR/TRY	1 EURO	1.8591	1.8681	1.8578	1.8709
GBP/TRY	1 British Pound	2.7282	2.7425	2.7263	2.7466

Turkish Refinery Output Price

Product Name	YTL/TON	YTL/M3	Special Concise Tax	Dividend	Exclusive of VAT	VAT	VAT included price	Validity Date
Unleaded Petrol 95 OCTANE			YTL/M3	YTL/M3	YTL/M3	YTL/M3	YTL/M3	
İzmit	912,71	693,66	1.362,50	1,32	2.057,48	370,35	2.427,83	03/03/2007
İzmir	912,71	693,66	1.362,50	1,32	2.057,48	370,35	2.427,83	03/03/2007
Kırıkkale	916,96	696,89	1.362,50	1,32	2.060,71	370,93	2.431,64	03/03/2007
Batman	946,74	719,52	1.362,50	1,32	2.083,34	375,00	2.458,34	03/03/2007
Jet Fuel			YTL/M3	YTL/M3	YTL/M3	YTL/M3	YTL/M3	
İzmit	894,72	715,78	0,00	1,29	717,07	129,07	846,14	03/03/2007
İzmir	894,72	715,78	0,00	1,29	717,07	129,07	846,14	03/03/2007
Kırıkkale	907,42	725,94	0,00	1,29	727,23	130,90	858,13	03/03/2007
Kerosene			YTL/M3	YTL/M3	YTL/M3	YTL/M3	YTL/M3	
İzmit	894,72	715,78	760,50	1,29	1.477,57	265,96	1.743,53	03/03/2007
İzmir	894,72	715,78	760,50	1,29	1.477,57	265,96	1.743,53	03/03/2007
Kırıkkale	915,89	732,71	760,50	1,29	1.494,50	269,01	1.763,51	03/03/2007
Batman	922,95	738,36	760,50	1,29	1.500,15	270,03	1.770,18	03/03/2007
Diesel 7000			YTL/M3	YTL/M3	YTL/M3	YTL/M3	YTL/M3	
İzmit	840,40	710,14	834,50	1,27	1.545,91	278,26	1.824,17	09/03/2007
İzmir	840,40	710,14	834,50	1,27	1.545,91	278,26	1.824,17	09/03/2007
Kırıkkale	883,67	746,70	834,50	1,27	1.582,47	284,84	1.867,31	09/03/2007
Batman	883,67	746,70	834,50	1,27	1.582,47	284,84	1.867,31	09/03/2007
Diesel 50			YTL/M3	YTL/M3	YTL/M3	YTL/M3	YTL/M3	
İzmit	842,26	711,71	927,00	1,27	1.639,98	295,20	1.935,18	09/03/2007
İzmir	842,26	711,71	927,00	1,27	1.639,98	295,20	1.935,18	09/03/2007
Kırıkkale	885,53	748,27	927,00	1,27	1.676,54	301,78	1.978,32	09/03/2007
Fuel Oil 4			YTL/TON	YTL/TON	YTL/TON	YTL/TON	YTL/TON	
İzmit	531,76		476,00	1,42	1.009,18	181,65	1.190,83	03/03/2007
İzmir	531,76		476,00	1,42	1.009,18	181,65	1.190,83	03/03/2007
Fuel Oil 6			YTL/TON	YTL/TON	YTL/TON	YTL/TON	YTL/TON	
İzmit	407,27		204,00	1,42	612,69	110,28	722,97	10/03/2007
İzmir	407,27		204,00	1,42	612,69	110,28	722,97	10/03/2007
Kırıkkale	414,42		204,00	1,42	619,84	111,57	731,41	10/03/2007
Batman	414,42		204,00	1,42	619,84	111,57	731,41	10/03/2007

Source : www.tupras.com.tr