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Letter from the Editor

Dear Readers,

During the last two weeks, Turkey has ratified the nuclear law and with the opening of Turkey-Greece pipeline, moved one step closer towards being an energy terminal.

The oil prices are still high and there are concerns regarding the American economy. Will there be a crunch? Yet we have to wait and see.

This is the excitement in working energy business. There are interesting developments, concerns and ambiguities.

This week, our very own Rovshan Ibrahimov has made a comeback with an interesting article regarding Azerbaijan. As always, Haluk Direskeneli is sharing a glimpse of his professional experiences. Metin Gezen, on the other hand, tried to explain how the oil prices can be dissected.

Until next week, all the best,

Editor



Rovshan Ibrahimov
Editor in Chief of USAK
Energy Review

Azerbaijan “Gas Attack” –Exit to Europe

17 November in Ipsala in Turkey was held inauguration gas pipeline connecting the gas networks of Turkey and Greece. The inauguration was attended by President of Azerbaijan Ilham Aliyev, Prime Ministers of Turkey and Greece Tayyip Erdogan and Costas Karamanlis, as well as ministers of energy of Georgia and the United States. After realization of construction of this pipeline, it has been made possible to export of Azerbaijani gas from the Shahdeniz deposit in the Caspian sea to the member state of the European Union, to Greece. By 2012, also planned to complete the construction of the pipeline between Greece and Italy and then natural gas from Azerbaijan will also pumped to Italy.

The significance of this pipeline is that it allows supply gas European consumers by alternative to Russia route. In particular, at the end of 2006, thanks to the introduction into service of Shahdeniz gas deposit, Azerbaijan managed to completely abandon the import of Russian gas, amounting to a yearly average of 5 billion cubic meters. Azerbaijan has had to make the move shortly after Russia increased gas prices nearly doubled, demanding for a thousand cubic meters of gas 235 dollars. Payment of such a high price for gas has been also unable Azerbaijan neighbor Georgia. However, the introduction of operational Baku-Tbilisi-Erzurum enabled the country to purchase natural gas at a price of 140 dollars per thousand cubic meters of gas from Azerbaijan, which has facilitated the already difficult situation of the Georgian economy.

Azerbaijani gas plays an important role, both for Turkey and the EU countries, which have the possibility of access to a supplementary source of this resource. Apart from the pipeline to Greece and Italy, the Azerbaijani gas and gas from the Caspian Sea basin are scheduled exported to the countries of Eastern Europe through the planned pipeline Nabucco. Azerbaijan has already agreed to participate in this project and even considered a possible equity participation Azerbaijani State Oil Company in the construction of the pipeline. In this case Azerbaijan is not particularly receives the risk options for the export of natural gas to its European markets. In addition, several days ago, the operator for the exploitation of Shahdeniz BP, announced the discovery of new deposits of natural gas in this field. Today anticipated that the field is up to 1.2 trillion cubic meters of gas. However, as shown by the recent discoveries this figure could grow even more.

Officials from the United States and the EU also lobbying Turkmenistan and Kazakhstan to join the project Nabucco. Already President of Turkmenistan Berdymuhamedov to the prior consent to the possibility of his country's accession to the project. However, this requires the construction of the Trans Caspian gas pipeline. The main obstacle is its implementation lies in the issue of the status of the Caspian Sea. Meanwhile, governmental commission of Azerbaijan and Turkmenistan started again negotiations on the definition of affiliation Kapaz-Sardar oil field, which is the main focus of the dispute between the two countries. In the case of solution to this problem appears hoped that the two countries will also consider the question of the division of the Caspian Sea between the two countries.



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Even in the case of non-participation of Turkmenistan after realization the Nabucco project, Azerbaijan, without economic and political risk will have the opportunity to use both the pipeline, Nabucco and those which opened between Turkey and Greece and will have a possibility to maneuver with different situations. Exit through these pipes to different countries, will contribute to a more elastic approach to possible problems with a country's economic or political nature.

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Dhahran Saudi Aramco, May 1996

In May 1996, a leading US boiler manufacturing company decided to send a marketing team to Dhahran Saudi Aramco facilities to make presentations of their new product "heat recovery steam generators" to upgrade the existing simple cycle gas turbine based power stations in Saudi Arabia.

Mr. Prahlad Kaushik was responsible to make the presentations in Saudi Aramco Dhahran premises, Sales Manager from Babcock & Wilcox International Inc of Barberton, Ohio USA. Since we were the B&W's closest JV Company to the Saudi Aramco site, I was also asked to join the mission to support at site and get ready for necessary proposal preparation if/when needed in future.

Saudi Aramco, the state-owned national oil company of Saudi Arabia, was/still is the largest oil corporation in the world and the world's largest in terms of proven crude oil reserves and production. Headquartered in Dhahran, Saudi Arabia, Saudi Aramco also operates the world's largest single hydrocarbon network, the Master Gas System. It was formerly known as just **Aramco**, an acronym for Arabian American Oil Company.

In 1973 the Saudi Arabian government acquired a 25% share of Aramco, increased this to 60% by 1974 and finally acquired full control of Aramco by 1980. In November 1988 the company changed its name from Arabian American Oil Company to Saudi Arabian Oil Company (or Saudi Aramco).

Saudi Aramco produces and exports more crude oil than any other company. Recent production has averaged some 8 million barrels (1,300,000 m³) per day.

I took the non-stop overnight flight by Singapore Airlines from Istanbul to Dhahran. Flight was very comfortable. I recall zero-size beautiful Singaporean hostesses serving the meal.

We landed to Dhahran International airport after 4 hours of flight in their morning time. At the Dhahran customs clearance, the customs officer asked me to open my luggage and he inspected every written item, especially the written documents/ books/ magazines. Since I brought only company documentations, all business, harmless, it was relatively easy for me to pass the inspections. I remember the other passengers to leave all their magazines, books and newspapers at the gate to pass the customs.

At the arrival gate, our local rep was waiting for me. He took me to the special compound where we would be staying that week. The compound was operated by a Muslim Indian family. It was a family run enterprise. We had delicious Indian food open buffet service. It was a popular lodge for expatriates staying in Dhahran for short term.

Each one of us had a big private house with full accessories, air-conditioned, refrigerator, satellite TV etc. We had an open-air swimming pool nearby but

we had no appetite to swim due to high heat during day time.

My business associate arrived on the same day from USA. We took a taxi that evening and went to a nearby rent-a-car company. It was also operated by another Muslim Indian brothers. We had a brand new car with air condition. Since my business associate had broad business experience in this environment, he immediately drove the car to a service station, and asked them to check the car/its engine/ tires etc. Although car was clean, it had low oil in engine and brakes, and tires were seriously worn-out. So the Indian mechanic completed the oil and advised us to be careful in driving especially in braking.

The next day we arrived to the head quarters of Saudi Aramco on outskirts of Dhahran. It was a huge establishment.

I recall a digital sign “110” at the main gate. In our air-conditioned car interior, it was quite hot inside. But when I realized that “110” number means Fahrenheit, that was an incredible heat outside. It was even unbearable to walk from car parking lot to the head office interior, almost 100 meters walk.

To my surprise, it was similar to a small Texas City, expatriate office ladies were in light summer dresses, managers were with business suits. Indoors were all air-conditioned.

From its headquarters in Dhahran on the eastern shores of the Arabian Peninsula, Saudi Aramco manages virtually all of Saudi Arabia's enormous hydrocarbon enterprise.

We were invited into a large conference room. Almost 30 or more all male Aramco engineers were invited to join our presentation. They were all fluent in English; most of them were graduates of leading US universities, very competent in their professions.

We were also very experienced in our supply, steam generators world wide applications.

In our presentation my colleague explained the virtues of combined cycle power plants. The power house in Dhahran was equipped with undisclosed number of GE frame gas turbines all operated in simple cycle mode.

We were explaining them that if they would put heat recovery steam generators at gas turbine exit, generate steam and steam turbines to couple with the existing gas turbines, they would be generating almost 50% more of existing power generation free of charge.

All they should be doing was to invest some more money to buy and install the new heat recovery steam generators and steam turbines. We call that system “combined cycle power plant.”

We were selling heat recovery steam generators. That was a new concept at

that time, and a few special companies were manufacturing. We were expecting to receive a big order from our hosts.

In order to prove our marketing product we explained every detail of our equipment, showed our references. Our audience listened to our presentation and they asked many intelligent questions. In order to prove our point, we also prepared a feasibility study earlier. On the projector we showed them a Lotus 1-2-3 spreadsheet and asked our audience to give us their natural gas price in consumption.

In our market gas price is specified as USD per 1000 Nm³ or 1000 Normal ft³. That is also given as maybe 4-6 US Dollar per 1 million BTU. Due to ever increasing oil prices in the world, these prices are now almost tripled or more now.

Anyhow we were expecting that we could show them a payback period less than 3 years. In our own environment, conversion from simple cycle to combined cycle pays back within 6 months. That was so feasible.

Our audience had an internal conversation for declaring their natural gas price. Their response was very surprising for us at that time. They had no price for their gas, maybe a number but so negligible in their accounting books. Gas was almost free of charge. They were paying almost nothing, or a negligible figure for their gas production/ and its consumption. Their gas production facilities were next to giant oil fields and natural gas was a byproduct of their major oil production.

So there was no need for a combined cycle power plant. All they need to do was to run the existing gas turbines in simple cycle mode.

Later in the day, we had lunch together in their company restaurant and evaluated the current world business affairs. So in the end, our marketing was a failure.

The next day we returned to our countries with no market expectation of our heat recovery steam generation products in near future from gas producer countries. You have no chance to sell a design where you do not create a demand. Gas was free of charge and there was neither gain in money invested nor any payback in Dhahran.

Today we have more reasoning for introducing combined cycle power plants. We now know that simple cycle gas firing power plants add more heat into global warming compared to combined cycle systems since their exit gas temperature is between 400-500 Celsius or more, whereby the exist gas temperature is expected to be less than 150 degrees Celsius in combined cycle power plants. The annual CO₂ emission is quite high in the oil producing countries, compared to world average.

Measures to lower global warming and more ratifications of Kyoto protocol may create new opportunities to introduce new technology products into



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new markets.

However HRSGs alone are not a solution to CO2 emission. It generates more power free-of-charge, with some initial cost. It is only feasible if you pay a high cost for your gas, as in the case of our local market.

Your comments are always welcome. Thank you & best regards

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An Analytical Trial for Dissecting Oil Prices

Close to 100\$, oil prices seem like not running out of steam. Crises, supply-demand problems, mortgage crises and other factors effecting oil prices are at their worst time. Whether the understanding of these components can help our understanding of oil prices is dubious. However, the components of oil prices are not easy to separate.

There are different ways to explain oil prices. This is “my way” of not explaining but illustrating the oil price components.

Simple Mathematics

In terms of mathematics, we can summarize the relation between oil prices and effects as follows. If oil prices are a function of cost, a, b, i1, i2 in, we can write this as:

$$\text{Oil Prices}(\text{cost, a, b, i1, i2, i3 in})$$

In this representation, I will concentrate on the six major effects and one aggregated effect. The illustration is just to analyze different parameters in oil prices. For the sake of simplicity, let's assume that oil prices are a linear function, although this is a very crude simplification. And let this function be shown as

$$\text{Oil Prices} = a * (\text{cost} + b * (i1+i2+i3+i4 + e))$$

Or

$$\text{Oil Prices} = a * \text{cost} + a * b * (i1+i2+i3+i4 + e)$$

where

Parameter	Unit	Explanation
a	<i>Dollars/Effects</i>	An exchange ratio for converting major effects in to dollars
b	-	A unit-less parameter to represent amplification of inputs due to supply-demand tightness
cost	<i>Effects</i>	cost of producing one barrel (Geology, Technology, Labor, Capital)
i1	<i>Effects</i>	Supply side effects
i2	<i>Effects</i>	Demand side effects
i3	<i>Effects</i>	Geopolitical problems
i4	<i>Effects</i>	Seasonal/Weather related problems
e	<i>Effects</i>	Speculation and others

Therefore, we aggregated all inputs other than cost, a, b, i1,i2,i3 and i4 into e.

$$e = i5+i6+ \dots.in$$

Apart from “a” and “b”, all other inputs have the same unit called “effects”. “a” is the exchange rate from “effects” to “dollars”. So, this multiplier is an imaginary exchange rate, which will be examined at the end. “b” is just an amplification factor that is a function of “supply-demand tightness” or a measure of volatility. The other inputs cost, b, i1, i2, i3, i4 and e will be explained shortly.

Cost

What is the cost of producing a barrel of oil? It may be 15 for one group of producers, 35 for another group of producers. In our equation, this is just a unit-less cost of producing one barrel of oil. Then by multiplying by “a”, we find a dollar equivalent of this function.

This parameter also gets affected by the world reserves’ status. As the reserve that we are producing oil from diminishes, cost function increases.

i1 : Input 1 – Supply side effects

Supply side effects are the effects mainly caused by investment and on stream effects. For example if there is a lagged effect of investment, exploration and development (E&D) problems, this variable increases. So, “i1” is inversely proportional with the E&D hence investments made in previous years. You can assume lag time as 5-7 years. As the oil prices drop, investment faces severe shortage and effects are not obvious simultaneously. But as the price increases, new investment arrives. But the effect of this investment also arrives with a lag and then “i1” drops. This doesn’t necessarily mean that a drop in “i1” will mean a drop in oil prices. Because there are 4 other variables.

i2 : Input 2 – Demand side effects

Demand side problems are quite obvious. The healthy growth years of the world economy has helped the hunger for oil to increase. This is an important factor, because contrary to the historic “oil price peaks”, this is the, probably, main reason behind the contemporary structural shift in oil prices. Recently, India and China are the important contributors to this effect. According to IEA, demand from China and India’s will continue to shape the future of world oil demand.

Input 2 increases as demand grows, that is to say that it is proportional to demand increases.

i3 : Input 3 – Geopolitical problems

From Iran’s nuclear ambitions to the militant attacks in Nigeria, all kinds of conflicts and political problems related to oil rich geography fits in here. It is not easy to quantify the effects of these problems but the disruptions (barrels/day) in oil supplies due to geopolitical problems can give an idea about this. As an example, a disruption of 600.000 barrels in 2006 can give a price hike of more than 13-15 dollars. “i3” is also proportional to the geopolitical problems

i4 : Input 4 – Seasonal/Weather related problems

One of the most important problems recently is the seasonal problems. You can assign all the effects caused by hurricanes, warm or cold weather conditions into these variables. There is also seasonal inventory levels, which had to be watched carefully. “Driving season”, refinery maintenance is reflected in this variable.

e: Speculation and others

“e” is the speculation effects as well as financial effects, those I fail to formulate separately. An important factor in this group can be the flow of money to the commodity markets due to instability due to mortgage crisis or trade deficit concerns.

b: Amplifying/Volatility factor

This input is a factor that increases as demand-supply balance tightens and decreases as more supply capacity or demand drop occurs. Supply capacity can be due to the production from new well, demand drop can be from a global economic crisis. You can call it volatility constant, too.

Hence, if any of the inputs change and if the supply-demand balance is tight (b is large), the effect on oil prices will be huge

a: “Effect” to Dollar Exchange Ratio

This variable is why I aimed to write this whole article. When oil prices soar, people seem to blame the most contemporary effect regardless of its relevance. It may be partially true, but blaming this variable for the effect is not explaining the whole story. “a” is only a factor that converts costs or inputs to the dollar equivalents.

If dollar loses some of its value, “a” will increase, and if dollar gains value, which is rather hard nowadays, “a” will decrease. But you can replace “a” with an “Effect to Euro exchange ratio” or “Effect to Yen exchange ratio”, still the dominant factor in price increases are the inputs and amplifying factor (supply-demand tightness).

Conclusion

When comparing oil prices, there is an inflation adjustment. That means, 37 dollars in 1980 equals to roughly 94.80 dollars. But there are things which we are not comparing between then and now. Like energy intensity, like increasing wealth in the non-OECD economies...

100\$ oil of today may well be higher than the inflation adjusted price of the past. Yet, we are living in a different world, which is more prosperous than 80s and 70s. The technology is different, the way we use energy is more efficient. So merely, comparing oil prices is not enough. We should also consider the wellbeing and the structure of world economy now.

Whether dollar drops or increases is another issue, but if the world is much richer



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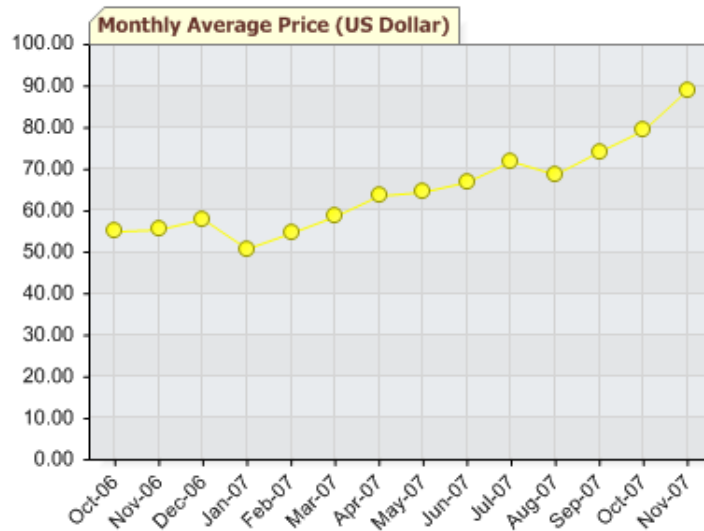
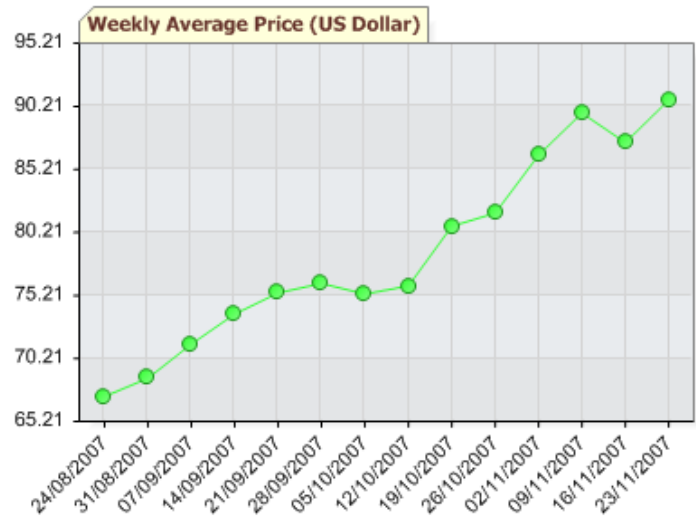
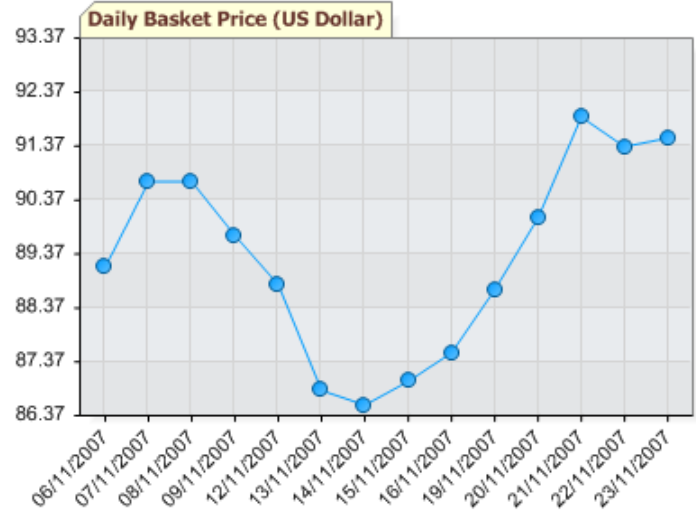
and efficient than the world of 70s and 80s, we will expect the demand to grow (by slowing down) for sometime. Maybe until 150 dollars, who knows? But the main problem is not the hike in dollars (due to "a") but costs, supply-demand tightness and other inputs.

Unfortunately, regardless of "a" what we are seeing is the increase in oil prices. Even if all the explanation I made so far is wrong, there is a core idea. Dollar's fall, hence the increase of "a" has a contribution in oil prices, but the problem lies in the rest of the equation.

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Indicators

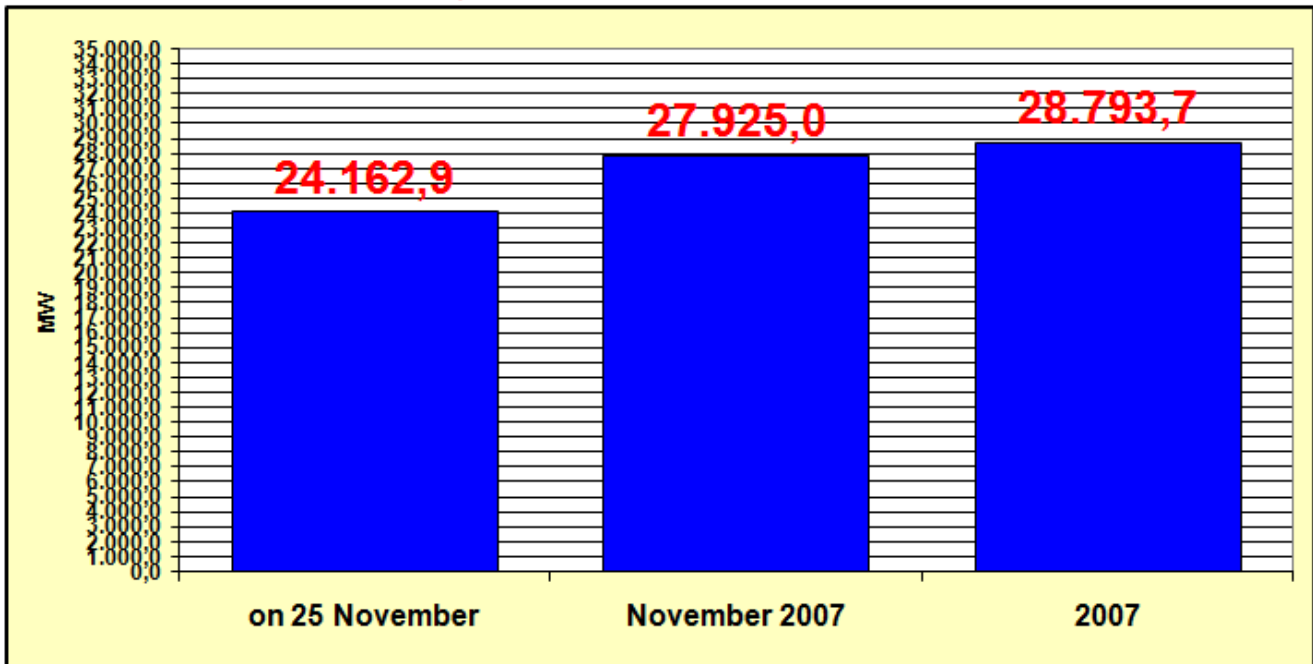
OPEC's Basket Price



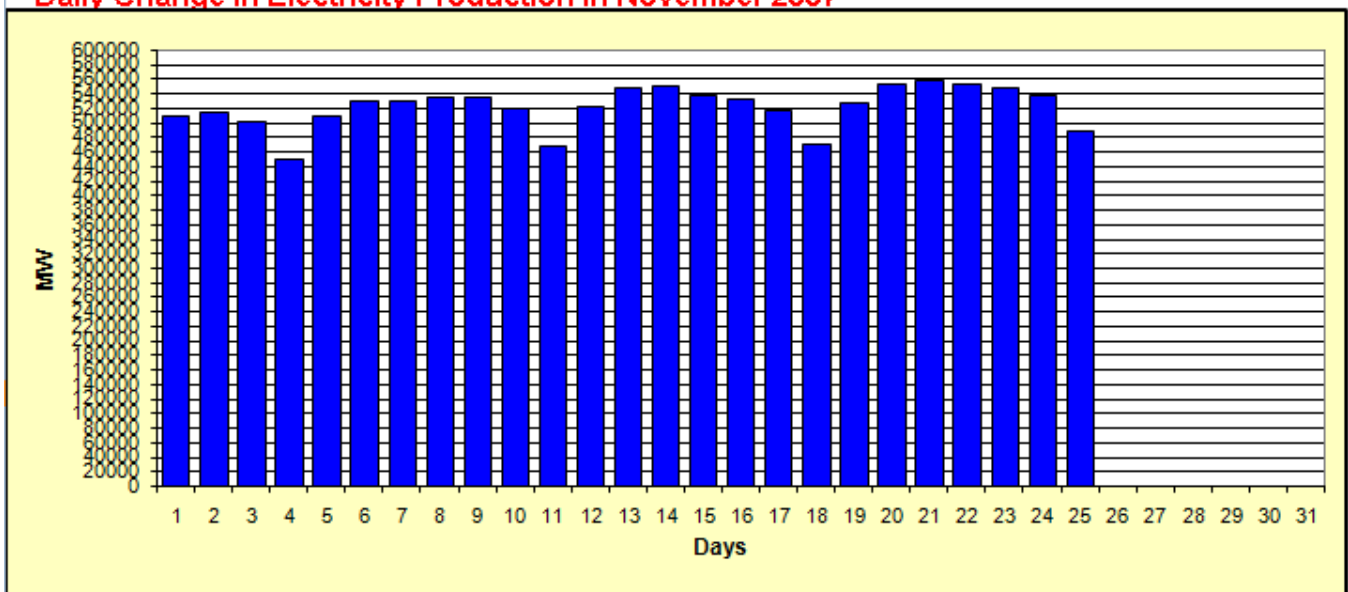
Indicators

Turkish Electricity Consumption for November 2007

Peak Consumptions



Daily Change in Electricity Production in November 2007





Indicators

Indicative Exchange Rates Announced at 15:30 on 26/11/2007 by the Central Bank of Turkey

CURRENCY		EXCHANGE RATES		EXC.RATES ON BANKNOTES	
		Buying	Selling	Buying	Selling
USD/TRY	1 US Dollar	1.1862	1.1919	1.1854	1.1937
EUR/TRY	1 EURO	1.7627	1.7712	1.7615	1.7739
GBP/TRY	1 British Pound	2.4542	2.4670	2.4525	2.4707