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## Letter from the Editor

Dear readers,

Again, we are happy to meet with you on this 9<sup>th</sup> issue of our review.

In today's world, events taking place far from our homes directly can also affect us. This is no exception also for the energy sector. Let's see, the adoption of a new law on oil in Iraq, nationalization oil sector in Venezuela, the decision to establish its own armed forces by Gazprom in Russia- all of these developments are likely to affect the voltage in our lamps, heat of our homes.

This once again proves the fact that our review has truly global readers. People from all over the world continue to follow our titles. So ladies and gentlemen 9<sup>th</sup> issue is being reflected on the screen of your monitors.

Until next week,

My Best Regards

Rovshan Ibrahimov ,  
Editor of USAK Energy Review



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## A New Era in Energy Efficiency in Turkey

**Fevzi Saffet Bora**

USAK's Energy  
Expert

The main responsible organizations for energy efficiency policies and activities in Turkey are Ministry of Energy and Natural Resources and the General Directorate of Electrical Power Resources Survey and Development Administration (EIE)/National Energy Conservation Centre (NECC) The MENR is responsible for formulation of policies and supervision of their implementation within the context of national energy policies while EIE/NECC is responsible for implementation and coordination of the energy efficiency programmes. But the area of energy efficiency has been neglected for years in Turkey. We have only concentrated in the area of electricity generation for years.



EIE/NECC has been carrying out training, energy auditing, drafting of legislation and public awareness promotion activities for enhancing energy efficiency in all end-use sectors. Moreover, EIE/NECC has been conducting energy efficiency projects in Turkey. But how considerable were these activities. What were the responsibilities of the municipalities and what have they done for years. There are programmes such as MANAGenergy and Intellegent energy in the EU

but the governments have not wanted to be a part of these programmes due to small amounts of local contribution.

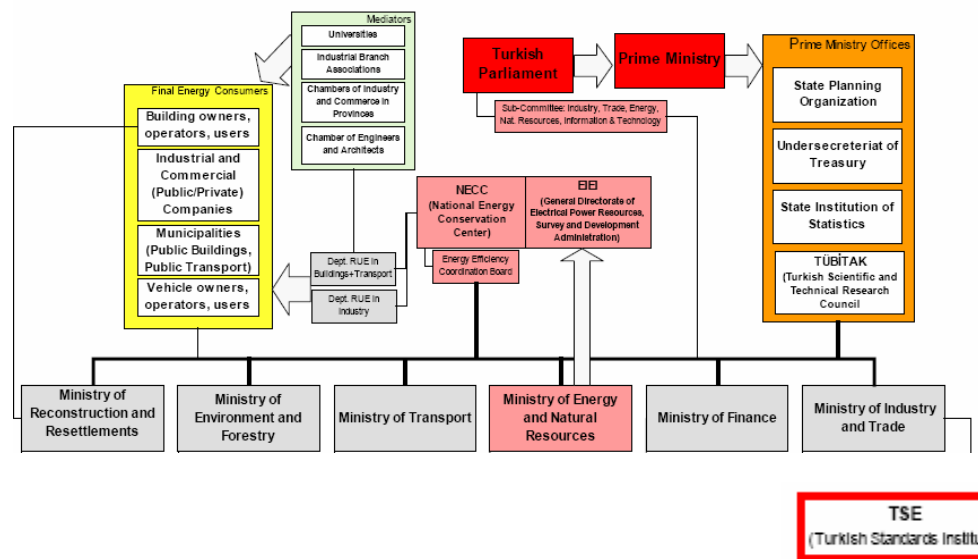
The Energy Conservation Coordination Board (ECCB), under the auspices of EIE/NECC, is responsible for motivating public awareness. Energy conservation and efficiency studies in end-use sectors which indirectly contribute to environmental protection via efficient use of energy resources are carried out by the EIE/NECC. (EU EE Strategy in Turkey project).

But as a result of all this history, The Draft Law on Energy Efficiency which was developed as a result of the EU funded project and due to our tasks of complying with the EU Directives has been adopted by the Turkish Grand National Assembly on the 23<sup>rd</sup> of February 2007. With the new law a so called "Energy Efficiency (EE) Coordination Board has been established to execute, oversee and coordinate the EE activities by the relevant organizations around the country.

The EE Law bears with it the principles and procedures regarding the implementation of EE practices to all phase of the energy generation and utilization processes, spreading of the consciousness regarding EE among the public at large, among commercial and industrial customers and in buildings in transmission and distribution networks, in transportation. It also envisages the aim of perceiving energy EE as an energy resource which must be tapped into.

EE in buildings is very much emphasized in the text but there are exemptions for buildings which are considered to be national monuments and for buildings which are under state protection because of historical value.

The law foresees the establishment of EE Coordination Board which will fulfill the task of coordinating the EE activities on a nation wide scale.



(EİE)

General Directorate of electrical power resources survey and development administration (EİE) will license trade associations and universities to have the authority to teach about EE. And private EE consultancies will also be licensed by EİE in order to do business in the area of EE.

Energy Administrator, in enterprises and buildings which have an annual energy consumption equivalent to 500 tonnes of petrol (TEP) or above will have an energy administrator and the usage of efficient central heating systems will be incentivised. There will be energy labeling /energy usage identity for efficient energy use to be issued by the Ministry of public works for especially larger buildings which will bear the energy needs, system specifications, insulation features and etc.

There will be incentives to fund the energy efficiency programs up to 20% of the total cost of the projects. Projects are foreseen to be completed in a matter of two years. Licenses that are granted by the General Directorate of electrical power resources survey and development administration will be revocable by the approval of the EE Coordination Board. Cogenerators of heat, steam, electricity and mechanical energy for own use (up to a capacity of 200kw ) will have the privilege of not having to setup companies or earn licenses for that purpose.

There also provisions in law regarding the renewable purchase obligations of 10 years from a purchase price of 5.5 cents per kwh.

According to our point of the Ministry of Energy shall be responsible through EİE every 2 years to develop and to submit to the Council of Ministers for approval a national energy efficiency program. The program shall be accompanied with a detailed economic evaluation and regulatory impact assessment. From the same token, "Energy Data Reports" as a support to the EE Program shall be made compulsory for supporting the development and monitoring of the national energy efficiency program energy database at both, national and local level, shall be created and kept respectively by EİE and the local energy offices. Fuel and electric suppliers must be obliged to submit every 6 (six) months their data reports on amount of energy supplied to customers.

EU funded EE Strategy in Turkey project has the following conclusions and recommendations: In the process of developing an EE strategy a common understanding can only be developed with the main stakeholders in energy efficiency

sector that certain conditions have to be provided in order to ensure the effective implementation of energy efficiency strategy nationwide.

These conditions are:

- Maintaining and adjustment of the Energy Efficiency Strategy to a status, which can be adopted by related governmental institutions
- Adoption of the Energy Efficiency Strategy and effective integration of the strategy into the related programmes of the governmental institutions



- Establishment of the legislative framework for ensuring effective implementation of energy efficiency programming as well as effective supervision of energy performance norms, especially development of regulations to meet the requirements of Commission Directives 93/76/EEC to limit carbon dioxide emissions by improving energy efficiency and 2002/91/EC on the energy performance of buildings
- Provision of the administrative framework and arrangements, allowing the governmental institution, which is entrusted with the pursuit and coordination of energy efficiency process (EIE/NECC) to cooperate intensively with related governmental institutions (Ministries), mediators and end consumers
- Capacity building at governmental institution, for enabling (EIE/NECC) to perform energy saving potential analysis, targeted/integrated programming and implementation and coordination of the activities of the strategy
- Provision of adequate financial resources through appropriate EU instruments as well as establishment of innovative financing models for effective implementation of the envisaged activities of the EE strategy (e.g. TPF, analysis on the feasibility of creating an EE Revolving Fund through foreign donation).



There is lot to be done in the area of energy efficiency in Turkey. Almost 30% of the energy being consumed in MTEPs can be saved if the necessary policies are implemented in Turkey. This will especially create numerous business opportunities especially in the building and transportation sectors. Foreign companies can bring the know how and both Turkey and the friends of Turkey can win from this vast resource.

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## ORHANELI MINE

On February 24, 2000 I visited the Orhaneli Mine with Mr. Clark A. Moseley, The North American Coal Corporation, USA. This is our joint report



**Haluk Direskeneli,**  
Energy Analyst

The Orhaneli Mine supplies lignite to the 210 MW Orhaneli Thermal Power Plant. In addition, the mine supplies lignite to the local populace for domestic purposes. The mine started production in 1979. About 1986 and 1987 the major equipment was purchased to produce the current production levels. However, the Power Plant did not reach full capacity until 1997 after the installation of Flue Gas Desulfurization units. The production for the past five years is as follows:

YEAR	MINE PRODUCTION TONS	POWER PLANT SALES	DOMESTIC SALES
1995	445,888	623	153,542
1996	174,152	459,379	110,379
1997	1,401,228	1,146,111	64,697
1998	1,440,648	1,250,300	52,484
1999	1,142,400	1,343,071	41,961



The mining license for the operation of the Orhaneli Mine covers 9143.88 hectares or about 22,600 acres. The license is intersected in the middle of the Gumuspınar mine area by a private license. The lignite field is divided into three areas, namely Gumuspınar, Sagırlar and Civili. All mining is in the Gumuspınar area, which is about 5 kilometers long and 1 kilometer wide.

The geologic structure is comprised of one main seam overlain by marls, sandstone, siltstone, mudstone and tuff. The lignite follows the floor of the basin and is somewhat flat in the center and steeply dipping (15 to 20 degrees) on the edges. The lignite seam is split into two with a parting layer approximately 0.5 to 1.5 meters thick. We were not able to see this parting layer in the pit nor was I able to review any drillhole logs to verify this parting thickness. The parting is completely mined with the lignite seam. Average lignite quality for all three areas is shown below:

Lignite Field	Ash (%)	Moisture (%)	Sulfur (%)	LHV (kcal/kg)	LHV (BTU/lb)	HHV (BTU/lb)
Gumuspınar	20 – 22	30 - 34	1.6 - 1.8	2400 – 2600	4320 - 4680	4540 - 4920
Civili	40 –42	20 - 22	1.9 - 2.1	1900 – 2100	3420 - 3780	3590 - 3970
Sagırlar	19 – 21	26 - 30	2.2 - 2.4	3000 – 3300	5400 - 5940	5670 - 6240

At the start of 2000 TKI estimated the remaining lignite reserve to be 42.2 million

tons. The Gumuspinar field contains 25.3 million tons, Civili has 10.7 million tons and Sagirlar has 6.2 million tons. This is TKI's estimate and whether this estimate is quantified as mineable or at a certain quality cutoff is suspect. At the projected plant requirement of 1.4 million tons per year the current life of the Gumuspinar field after TOR transfer in 2001 is less than 17 years. The remaining production for the life of the TOR must come from either Civili or Sagirlar.

The overburden thickness in the Gumuspinar field ranges from less than 40 meters to over 170 meters and dips from the west to the east. Attached are conceptual cross sections of this field. Per current estimates the average mining ratio in this field is 14.5 cubic meters waste to 1 ton of lignite. I have not verified this estimate, but I believe that it is a fair representation of the current mining ratio. Local engineers have developed a reserve estimate of the Gumuspinar field and this estimate is summarized below:

### Gumuspinar Estimated Volumes

PANEL	WASTE VOLUME (000)	LIGNITE TONS (000)	RATIO M <sup>3</sup> :T	CUMULATIVE RATIO	YEARS OF PROD.@ 1,400 TONS	ANNUAL STRIP PROD. RATE
A-1	11,000	1,500	7.33	7.33	1.07	10,267
A-2	30,000	6,500	4.62	5.13	4.64	6,462
A3-2	28,000	1,800	15.56	7.04	1.29	21,778
A3-3	38,000	2,000	19.00	9.07	1.43	26,600
A3-4	30,000	1,800	16.67	10.07	1.29	23,333
A3-5	30,000	1,400	21.43	11.13	1.00	30,000
B-3	65,000	3,000	21.67	12.89	2.14	30,333
B-2	60,000	3,000	20.00	13.90	2.14	28,000
B-1	50,000	2,600	19.23	14.49	1.86	26,923
w/o Private Pillar	342,000	23,600	14.49		16.86	20,288
Private Pillar	10,000	2,250	4.44		1.61	6,222
w/ Pillar	352,000	25,850	13.62		18.46	19,064

We have included in the above estimate what we believe is the private lignite block or pillar that intersects this field. This block contains a substantial amount of lignite in the shallower up dip portion of the reserve.

The mining method used by TKI is a truck/shovel prestrip with the final uncovering of the lignite by a walking dragline.

The truck/shovel fleet is comprised of 4 P&H 1900 10 cubic yard shovels; 2 Marion 191M 15 cubic yard shovels; 27 Caterpillar 777 85 ton trucks and 13 Komatsu HD 785-A 85 ton trucks.

The dragline is a 33 cubic yard Bucyrus Erie 1260W.

The majority of this equipment was purchased new in 1986 and 1987. A more complete list of the equipment is shown below:

EQUIPMENT TYPE	MAKE	MODEL	CAPACITY	START DATE	UNITS
Dragline	BE	1260W	33 yd.	1987	1
Shovel	P&H	1900 AL	10 yd.	1986	4
Shovel	Marion	191 M	15 yd.	1987	2
End Dump Truck	Caterpillar	777	85 ton	1986	27
End Dump Truck	Komatsu	HD 785-2	85 ton	1987	13
End Dump Truck	Komatsu	HD 465-A	45 ton	1986	4
Track Type Tractor	Caterpillar	D8 L		1985	3
Track Type Tractor	Komatsu	D335 A-3		1986	5
Wheel Dozer	Caterpillar	824 C		1985	1
Motor Grader	Champion	120		1986	2
Blast Hole Drill	Ingersoll Rand	DM 50	9 in.	1985	3
Blast Hole Drill	Reeddrill	SK 50-T	9 in.	1985	1
Air Track Drill	Ingersoll Rand	VD 750	4 in.	1987	1
Wheel Loader	Caterpillar	988 B	6 yd.	1985	2
Wheel Loader	Volvo	4400-S	2.5 yd.	1984	1
Wheel Loader	Case	W 20-C	2.6 yd.	1986	2
Backhoe	Cukurova	755	1.1 yd.		1

The pits are oriented along the strike and are proceeding down dip. The truck/shovel fleet removes the overburden down to a depth of about 26 meters above the lignite seam. The dragline then uncovers the lignite seam in an extended bench operation. Mining panels are about 70 meters wide for the dragline operation. The dragline spoils its material up dip. At the present time the dip of the lignite was stated to be 10 degrees. Most of the truck/shovel overburden is hauled to out of pit dumps. The highwall is planned to stand at 60 degrees and the spoil 30 degrees.

To produce approximately 1.4 million tons of lignite, the Orhaneli Mine employed 605 people as of October 1999. Of this total 96 are staffs which may not accept a transfer at the time of transfer date. The workforce is comprised of 509 employees which includes supervisors.

### Mine Visit Observations

After discussions with the newly appointed General Manager, a tour of the mine, truck dump, shops and warehouse was conducted. On initial inspection, this operation is typical of all the state run mining operations in Turkey. Facilities are built along the same concept with the administration building, cafeteria, shops, and warehouses in separate buildings as part of a campus concept. Facilities are average in appearance and show neglect of normal maintenance. The landscaping shows neglect and is unkempt.

The active pit was idle at the time of our visit. This is normal during the winter months in Turkey. All operations in Turkey believe that operations during the

winter months are difficult, if not impossible. The majority of the workforce stays at home and receives full pay during this time. However, a stripping contractor was operating removing overburden with 20 ton highway type trucks and was hauling to the outside dumps.

The pit had experienced a major spoil slide in the North end of the pit. Placing dragline spoil up dip on a 10 degree slope with little or no water control caused the spoil to slide back into the pit and cover up the exposed lignite seam. This spoil failure appeared to be an ongoing problem in that a pillar of virgin overburden was left to help buttress the slide. This effort has failed. The contractor will be used to re-handle the slide material and pillar to help stabilize the pit and to uncover the lost lignite. We could not tell whether any truck/shovel spoil had been placed on top of the dragline spoil in this area. I believe that all truck/shovel material has been hauled to the outside dump.

Very little of the lignite seam was observable. The pit had filled with water and no efforts at that time were being made to pump the water out of the pit. Although this region had experienced some snowfall and rain recently, the majority of the water in the pit is from groundwater seepage. However, the highwall was making some water, but it was not a significant amount. Proper water control management was lacking in both the active pit and on the spoil benches. The water in the bottom of the pit and in the active spoil contributes greatly to the spoil stability problems that the mine is experiencing.

Lignite loading operations are performed by the smaller shovels and wheel loaders. We also believe that the 45 ton trucks are tasked to haul the lignite. As stated in the geology section above, there exists a substantial parting in the lignite seam. If this parting is as described, then we believe that this parting could be effectively separated. The lignite in the run of mine stockpiles is of varying quality but shows evidence of considerable dilution from this parting and spoil. Due to the poor spoil stability, some of the lignite is also lifted by the dragline, which also contributes to the reduction in lignite quality. Quality can be improved by controlling the spoil, dewatering the pit and separating the parting. I was able to observe the top of the lignite seam, which the mine was saving for domestic sales and it looked like a very good, high quality lignite. Too bad it was not being saved for the power plant.

Prestrip operations appeared to have ceased. The highwall appeared to be very stable and was quite steep with little or no advance in front of the dragline. I was pleasantly surprised about the stability of the high wall. The lack of prestrip operations supports the premise that TKI has reduced its advance stripping while awaiting the TOR process. All of the shovels were sitting on the dragline bench. One of the Marion shovels appeared to be undergoing a major maintenance project. One of its tracks was missing. I could not see any active maintenance activities happening on any of the equipment parked in the pit. One blast hole drill was operating.

The overburden waste dump was being developed for the next vertical lift. As with all Turkish operations the waste dumps seemed to be lacking in planning and layout. Dumps were placed and shaped without any logic or long term plan. The active dump was driven at the slope of the ramps and was in an arc so that the dump maintenance would be minimal. However, this procedure exposes the trucks to a steep dump slope which is a safety concern. The preferred method would be to drive the ramp upward at the slope of the ramp, then expand the dump by dumping on the level. This would eliminate the trucks dumping on a slope that is at an angle to the axis of the truck and also eliminates added maintenance on the hoist cylinders and body pins.

We were able to get up on the dragline. It appeared that all power was off on the

machine. With the freeze and thaw cycles that happen during this time of year, this could cause problems with the electric motors and generators as the machine is idled. The interior of the dragline was clean and well maintained.

We observed 5 Cat 777 trucks with their engines removed for maintenance. One of the trucks was parked on the dragline bench. Maintenance practices were very shoddy on this truck. The bolts, nuts, parts and accessories were scattered all over the truck and on the ground. All of the exposed hydraulic hoses were either left open or had rags stuffed in them. With the rains and snow, the rags were wet and contamination of the hydraulic system could not be avoided. The radiator of this truck had seen better days. The fan had eaten a large portion out of the corner, and the fix was to seal up the ends of the exposed core. Overheating of this truck was undoubtedly a part of its demise. We had asked if the management had experienced any unusual engine problems with this type of truck. They didn't think so, but out of the 40 overburden trucks, 11 had serious engine problems. This is a problem with this model of Cat trucks. The D348 series of engine that is in this truck is infamous for its reliability problems. We have seen in other TKI mines that the maximum scheduled engine life is 5,000 hours before a rebuild, if it hasn't failed prior to the rebuild.



The power plant was being supplied by lignite loaded from the run of mine stockpile. The responsibility of the lignite passes ownership at the top of the lignite dump hopper. The lignite truck was dumping directly into the hopper which was covered by a grizzly with openings about 0.8 meters. There was no wall or stop in which the truck could back up to. We saw evidence of a grizzly that was destroyed. The current dumping procedure is a safety hazard and can cause damage to the truck, hopper and grizzly. The lignite out of the stockpile was showing signs of spontaneous combustion and was being shipped to the power plant in a warm if not slightly smoldering state.

The maintenance repair shops are also typical of Turkish lignite operations. The floor of the shop is covered with a mixture of hard packed oil and dirt. Housekeeping is average for Turkey, but poor by US standards. A truck was having its axles and final drives worked on and oil was dumped on the floor and parts were laying about. Overhead crane capacity is adequate at 7.5 tons, but it is a limiting factor on major repairs. Unsafe practices may happen trying to lift major components. The yard outside of the shop is reinforced concrete. At this time we looked at all of the trucks in the maintenance repair yard and most of the trucks had well to excellent tread left on their tires. Good tire maintenance is evident. Preventive maintenance bays are consistent with Turkish practices with oil pits and wash down rack. Many full and empty oil barrels are in evidence. Again good housekeeping and oil spill prevention should be practiced to eliminate this environmental exposure.

The warehouse was well kept, but the inventory levels were less than other TKI mines. Some sort of inventory sharing should be established between all mines in Turkey, which have the same types of major equipment. The mine should make arrangements with Soma for the Marion shovels, and Guney Ege for the Cat 777 trucks, Bucyrus Erie 1260 dragline and the P&H 1900 shovels.

## Summary

The Orhaneli Mine is a very difficult mine, but this is not unusual for Turkish Mines. The project mining costs for the TOR bid was \$8.97 per ton! This appears to be an unusual low cost. Suzer and Borusan (the local Caterpillar dealer) prepared an updated cost estimate of \$10.99 per ton. This estimate includes an additional \$40 million of capital investment as opposed to the bid case, which had \$6.5 million of additional capital investment. The cost of \$10.99 per ton may be feasible, but would require extreme cost cutting measures to accomplish considering that the overall ratio is 14 to 1.

The bid did not include enough capital investment for equipment replacements, mine expansions and equipment upgrades. Suzer's projected annual production requirements assume equal annual overburden removal for an annual production of 1.4 million tons. The annual waste removal requirements are 17 million cubic meters of truck/shovel capacity and 3.6 million cubic meters of dragline capacity. Because of the dipping seams and variability of the field, this assumption of equal annual requirements is quite optimistic. A more detailed mine planning effort will show the actual total annual waste removal requirements and project the requirement for additional production capacity and, therefore, additional capital requirements.

The following cost estimate could be used to project an average cost for the term of the project. This is based upon comparable projects in Turkey and using an average loaded and return haul cycle time of 14 minutes:

Overburden Blasthole Drilling Cost	\$0.065/BCM	\$0.88/ton
Overburden Blasting Cost	\$0.130/BCM	\$1.77/ton
Overburden Loading Cost	\$0.147/BCM	\$2.00/ton
Overburden Haulage Cost	\$0.780/BCM	\$10.62/ton
Road Maintenance Cost	\$0.133/BCM	\$1.81/ton
Dump and Cut Maintenance Cost	\$0.201/BCM	\$2.74/ton
Lignite Loading and Haulage Cost	\$0.927/ton	\$0.93/ton
Management/Supervision Cost	\$0.500/ton	\$0.50/ton
Administration & General Cost	\$0.400/ton	\$0.40/ton
<u>Royalties and Taxes</u>		<u>0.65/ton</u>
<b>Total Cost</b>		<b>\$22.30/ton</b>

## Suggestions for mine improvement:

1. Acquire the private lignite pillar in the area of Dundar Village.
2. Eliminate the dragline operations in the bottom of the pit. This will eliminate the spoil stability problems and allow the turning of the mining advance 90 degrees. The mining face will then be oriented on the dip and the advance will be in the direction of the strike. This will eliminate the dumping of the spoil on the slope above the active pit, allow a pit sump to be established in the down dip portion of the mine, and facilitate the timely establishment of backfilling operations in the area of the Gumuspinar Village.
3. Start diligent water control management practices. Establish pumps in the pit bottom to keep the pit dry and reduce the probability of spoil slide. Efforts should be made to shape and grade the backfill material in the active pit to allow the establishment of ditches and water control structures to allow the dewatering of the spoil.
4. Establish a re-powering program for the Cat 777 and Komatsu 785 trucks. Current engine lives are too short and unacceptable.

5. Establish procedures in the lignite loading operations to separate the partings and to eliminate dilution from the spoil. Turning the pits 90 degrees will facilitate in eliminating some of the spoil dilution.
6. Plan the waste dumps to facilitate the operation of the dump, reduce the wear on the trucks and create a safer working area.
7. Clean up the facilities and the shops. This would reestablish pride in the workplace and also eliminate some of the environmental concerns with spilled oils and grease.
8. Create an atmosphere of increased maintenance awareness to eliminate water and dirt contamination to increase the lives of repaired components.
9. Fix the truck dump with a small concrete wall to stop the trucks from backing into the truck dump.
10. Work with the other mines to create a pooling of spare parts to enable faster repair turnaround and to maximize the utilization of working capital.
11. Operate the mine year round to reduce cost and the stockpiling of lignite. This will also increase the quality of the lignite by reducing spontaneous combustion and dilution in the stockpiles.

We have completed the draft report of our visit to Orhaneli. Our conclusions are that at an overburden to coal ratio of over 14 to 1, this will be an expensive coal operation. Lignite costs through the term of the TOR will average over \$22.00 per ton or about \$2.31/mmBTU HHV.

Your comments are always welcome;

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## Nationalization Of Oil Sector In Venezuela: Action Or Reaction?

There are many interesting events happen recently in the world in the area of energy economy and politics. In particular, in Iraq, a law on oil has been admitted, which will regulate oil policies of the state. According to this document, income from the oil would be distributed equally among the provinces of Iraq, and the relations with foreign companies will be based on the Production Sharing Agreement.

Another event occurred in Venezuela where the president of that country, Chávez announced the nationalization of the oil industry of the country by the date of May 1, 2007. This decision mainly affected the one of the largest oil fields in the world in the delta of the Orinoco River. Without a doubt, this decision of the fifth oil exporter in the world will affect oil prices at world level.

Some experts thought that this decision may have only a negative impact on the economic situation of Venezuela, on the grounds that the country and its major oil company Petroleos de Venezuela may lose needed foreign investment. This conviction is not exactly unfounded, and no doubt Venezuela will face serious challenges in the search for foreign capital for a possible investment in the further development of its oilfields. However, in view of the fact that in recent years the quotation of oil prices in the world markets has been raised, many oil exporters' countries are to be able to accumulate sufficient amounts in their stabilization funds. In this case, it is anticipated that Venezuela is no exception and in the short term this state should not faced with the serious problems in financing own energy projects.

In addition, Venezuela is trying to diversify its oil exports to the world markets, thereby providing a source of income from the sale of oil can also be used for the investment.

The most serious problem with which Venezuela may be faces is that, in the care of foreign companies may move with all equipment, specialists will leave the state. That's why, President Chavez who predicted such a situation, in an interview to the `Alle` reported that the decision of Venezuela is not to the complete withdrawal of foreign companies, but simply wants to own 60% of the company's assets in the territory of their country, that is, to establish joint ventures with the companies.

Some specialists argue that even if western firms will withdraw from Venezuela, this state will be able to find an alternative and, as such, will be open to Russian companies. Thus, since 2004 the Russian company LUKOIL plans to invest in the economy of the country about one billion USA dollars. Then from the end of 2006, the company started a joint drill with the national company of the country in one of the oil fields.

But even in the event of fall-back position, as represented by Russian companies, may demand from Venezuela to provide the necessary guarantees for the provision of the conditions for investment capital and business. The absence of such safeguards may discourage potential investors.

In addition to the nationalization decision by President Chávez, some observers compared to a similar decision of the Prime Minister of Iran, Mohammed Moussadyk when, in the 50th years, it announced the nationalization of oil sector in the country. It raised the Anglo-Iranian Oil Company, and Iran has had to face economic sanctions. As a result of that Iran which had to back down and modify policy towards foreign oil companies.

However, to compare these two examples is not the right, firstly because that in the 1950-thies, the international policy on the safety of energy resources was as crucial as today. Still, an international oil cartel of Petroleum Exporting Countries OPEC weren't established and each oil exporter country was just glad to intensified own activity in the absence in the market one of the main suppliers of oil.

*Venezuela is trying to  
diversify its oil exports to  
the world markets*

In addition, Iran has not had the opportunity for alternative supplies of its resources to the world markets, which Venezuela tries to guaranty to themselves. However, Venezuela in the case of possible economic embargo should provide such a market which will be the alternative to the United States, that is in principle, is very problematic.

Decision Venezuela can be compared to other nationalizations, which took place in Mexico on the eve of the Second World War. While knowing the situation in the world at the time, the government of Mexico has not only successfully hosted the nationalization but also found alternative markets for its oil, the main importer of which was Germany. At that time, on the eve of the Second World War, the United States was unable to support their companies and they had to be satisfied with a moderate payment by the Mexican government. In this case, it suggests that Venezuela is not accidentally chosen the period for the announcement of privatization.

Indeed, this spring possible the USA operation against Iran can be started, and the government of the United States may decide to ignore the Venezuelan nationalization, and will continue to purchase energy from this country. If the operation against Iran will not be held, Venezuela still may change their minds prior to the imposition of any sanctions, because this country has decided to give its decision in effect only for the month of May.

With the nationalization of Venezuela, it could be said that it was timely for two main reasons. Firstly, similar the nationalization processes were been held in neighboring Bolivia and Honduras. Honduras, declared temporary privatization and Bolivia has got full nationalization. Thus nationalization in Honduras touched the foreign oil companies such as American companies Exxon Mobil and Chevron, and in Bolivia Brazilian Petrobras, the French Total and American Vintage Petroleum. Thus, the temporary nationalization Honduras let this state to save about \$ 66 million a year, while Bolivia now will receive in budget up to 80% of the proceeds from mining and the oil.

After nationalization these states haven't been faced with serious problems that could come from the companies which lost developed fields. So, Venezuela by taking this decision, which primarily affect the oil companies as Americans Exxon Mobil, Chevron and Conoco Phillips, and French Total, Norwegian Statoil and British Petroleum, it is possible based on the analyses of the effects of the results of the nationalization of its neighbors.

It should also be borne in mind that some companies had worked in Venezuela also participated in the development of deposits in Bolivia and Honduras. And Venezuela just could see the response of these companies and their governments in relation to the policies of the management of the first two cases. However, if the decisions of Bolivia and Honduras have regional importance, while the decision of Venezuela, the world's largest exporter and can seriously affect the balance of power in the world market, and reaction to the decision of the government Venezuela may be more visible than it was in Bolivia and Honduras.

First of all, even if nationalization will be held without any serious incidents country will still have to pay to the oil companies for their assets to be removed. This amount can be overwhelming, and Venezuela could face serious problems in the return. If Venezuela refuses to pay or to reduce the amount it is not adversely affect the image of the country and in this case, the loss may be even greater.

The nationalization of Venezuela is a populist policy, but it is noteworthy that the time for that decision has been selected in a way. Current developments in the international arena, in the short term, Venezuela may feel more or less unperturbed and satisfied with the dividends that can bring its decision. Over time, however, this situation may change radically and potential investors in the medium and long term may translate its activity in less risky and more stable regions of the world.

*It should also be borne in mind that some companies had worked in Venezuela also participated in the development of deposits in Bolivia and Honduras.*

## Gazprom Permits Shell to Supply Gas to Turkish Market

Cagri OCAL,  
USAK

Russia's Gazprom Export, Shell Enerji A.Ş., and BOTAŞ, Turkish state's oil&natural gas pipelines and natural gas imports company, have signed a contract transfer agreement on February 28. According to the agreement, Shell is going to supply Turkey with 250 million cubic meters (mcm) of gas annually until 2021 –a total sum of 3.75 billion cubic meters (bcm)-.

After Turkish Competition Authority and Energy Market Regulatory Authority approved the agreement, Shell can start supplying Russian gas to Turkish customers in the second quarter of 2007. "In the past, France and Spain made quantity transfer agreements but it is for the first time a contract transfer agreement is made in energy sector. BOTAŞ transferred an import contract to another company with all rights and obligations." said Şakir Arıkan, deputy general-manager of BOTAŞ.

"Under the contract, Gazprom will supply 250 mcm of gas annually to Shell Enerji A.Ş. in the period up to 2021", the news release said. Total natural gas sale to Turkey will be 3.75 bcm and present value of this sale is approximately \$1 billion. (Cumhuriyet) Russia and Turkey established a gas partnership in 1984. Since 1984, Russia supplied a total of 138.7 bcm of natural gas to Turkey. Supplies from Russia followed an increasing trend in the past 22 years period and reached all-time high level of 20 bcm in 2006. Russian natural gas currently accounts for 65% of Turkey's gas imports. (The New Anatolian)

The tender was organized to comply with the law to liberalize Turkey's gas market. Signing the agreement, BOTAŞ accomplished the initial step of turnover process of natural gas trading contracts. "When we first called tenders, our annual natural gas consumption was around 30 bcm. Considering this amount, 4 bcm of natural gas was 12.5 per cent of our natural gas import. We predict 2007 gas import as 34 bcm. Now, 4 bcm means 10-11 per cent of this year's imports. That means 10-11 per cent of natural gas import will be handed over to private sector," said Şakir Arıkan, deputy general-manager of BOTAŞ. ([www.enavitas.com](http://www.enavitas.com))

BOTAŞ will also sign contract transfer agreements with Enerco (2,500 mcm), Avrasyagaz (500 mcm) and Bosphorus (750 mcm) in the following period. As a result, BOTAS will hand over 4 billion cubic meters of natural gas importation to the private sector and an oligopolistic market with five actors will be established. Liberalization of gas sector does not necessarily mean a price decline. Natural gas prices may either decline or increase according to deals with the importer firms. (Todayszaman)

According to the experts, contract transfer agreements will not lower natural prices in the future. "Keeping natural gas prices above \$200-\$250 level is a planned action of Gazprom. Gazprom plays an active role in markets in whole Europe and tries to increase market share in Turkey with different tools like contract transfer agreements." (Dünya)

One of the firms which will take place in the contract transfer agreements is Bosphorus Gas Corporation. Bosphorus Gas Corporation was established with the aim of taking part in the Turkish Natural Gas Market and has a partnership agreement with Gazprom / Gazexport. ZMB GmbH (subsidiary for GAZPROM Germania) acquires a 40% participating interest in Istanbul based Bosphorus Gaz Corporation. ([www.bosphorusgaz.com](http://www.bosphorusgaz.com))

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## Oil Markets - This Week

### Oil Markets: What to Expect from the Future?

**Hasan Selim Ozertem**

USAK's Energy Expert

*The factors that affect oil prices are demand for oil, oil supply, speculation factor and regional unrests.*

What determines the price of oil, the black blood of the world's economy? If we recall the main factors that affect the price of oil, it might be easier to analyze the developments in the oil markets. These are;

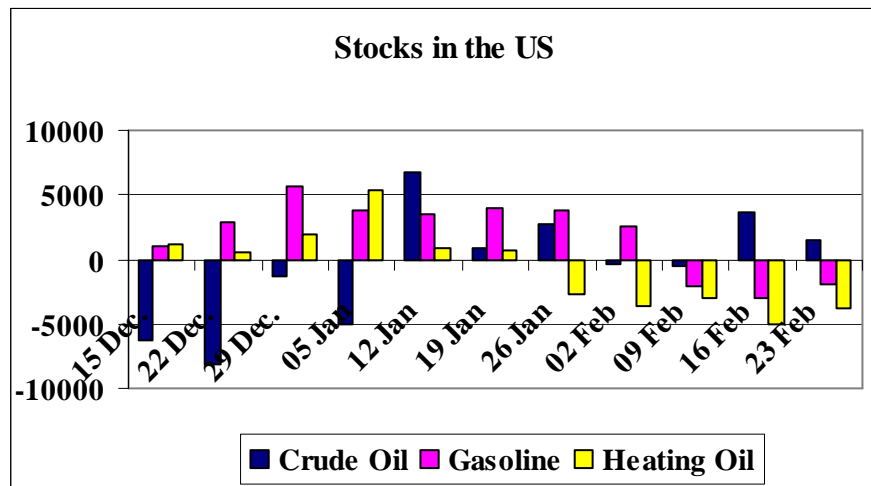
- i. Oil supply
- ii. Demand for oil
- iii. Speculation factor
- iv. Regional unrests

All of these are more or less related with each other and cannot be taken independently. And this week, important developments for the oil markets were observed in the global scale.

On Monday Iraqi government approved the long waited "Oil Law". This law defines the Iraqi Federal Oil and Gas Council as the owner of natural gas and oil of all provinces and regions in Iraq and also it allows regions to make "production-sharing agreements" (PSA) with foreign companies. It should be noted that there is a long way to go about this law. However, if this law gives impetus the process of oil production in Iraq, it will contribute the tension on the oil prices to decrease in the long term. Iraq has the world's 9.6 % of proved oil reserves but only can produce 1.8 million barrels per day. When compared with the production of Saudi Arabia or Russia, the production in Iraq is really low.

Secondly, this week former chair of the FED, Mr. Greenspan warned the world about a coming recession in the US. After his statements Chinese stock markets and later the other markets declined drastically on Tuesday. Moreover, these statements caused concerns to emerge about world growth and the oil prices decreased a little on Wednesday and the price of Brent became \$59.39 while the WTI's declined to \$60.69.

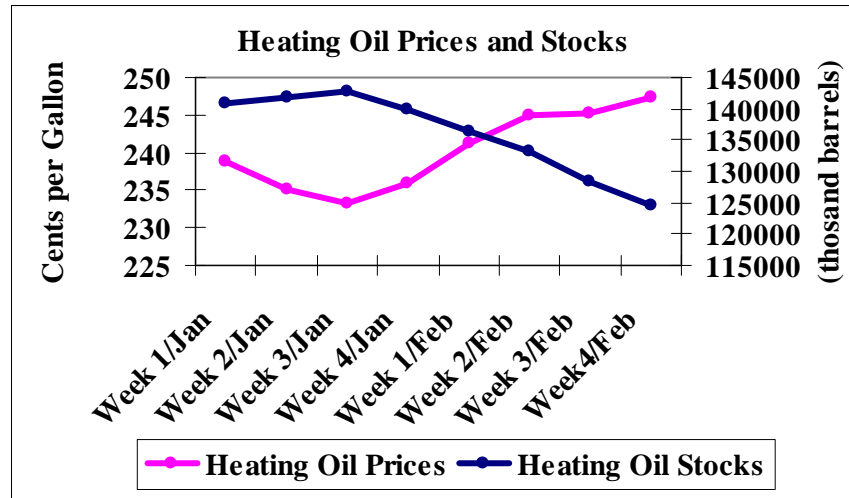
*The oil stocks decreased for the fifth week in the US.*



Source: Energy Information Administration

However, this did not take so long. The announced stock values decreased for the fifth week in the US and this cause the prices to increase once again. The decrease in stocks was 3.78 million barrels for heating oil and 1.94 million barrels for the gasoline. Moreover, the price increase in heating oil continues. The average price of residential heating oil increased by 2 cents per gallon in the US markets.

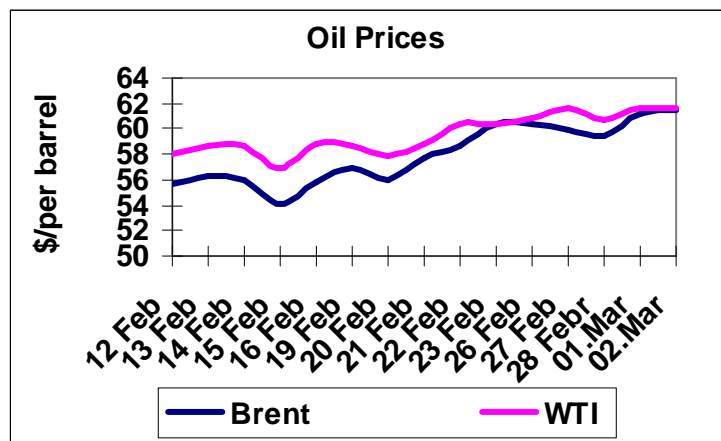
The US makes pressure on Security Council members to toughen the sanctions that are imposed on Iran.



Source: Energy Information Administration

Lastly, this week the five permanent members -Russia, China, Britain, France and the United States- of the Security Council and Germany discussed toughening the sanctions that are imposed to Iran due to its uranium enrichment program. In December, 23 the Council agreed to impose sanctions on Iran and gave it 60 days to suspend its uranium enrichment program. The week before this 60 days came to an end, but Iran said that it would continue its nuclear program but only for peaceful reasons. This kind of an increased tension causes the tension in the Middle East to increase further and we see its repercussions on the oil markets as the price increases. Since, Iran is the fourth biggest oil producer in the world.

According to a Bloomberg's survey 16 of 40 analyst expect oil prices to increase.



Source: Financial Times

To conclude, oil prices continued its increasing trend this week too. Brent oil was \$61.53 and WTI was \$61.65 on Friday. The increased tension in the Middle East and decline in the US stocks were effective on this price increase. On March, 15 there is an OPEC meeting in the schedule, but no production cuts are expected for now. Research director of OPEC Mr. Qabarzad was stated two weeks before the level of \$60 is acceptable for both producers and the consumers. And he added that it is unlikely for a decision to be taken for production cuts.

For this week, according to a Bloomberg's Survey, 16 of 40 analysts expect prices to rise where 11 of them expect a fall in prices. 13 of these analysts forecast a little change.

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## Travel

Haluk Direskeneli,  
Energy Analyst

## A Review of Turkish Power Plant (I): Baymina, State-of-Art Thermal Power Plant

Sometimes you complete a good job, you know that you accomplish a good return, it is a good job, many people had learnt/ earned many things, and it is something you created for a good value.

If you know that it was good, you do not need any appreciation, you do not need anyone to thank, you appreciate yourself that it was good, you feel happy and you want to drink a good red dry wine to celebrate yourself.



It was yesterday, 22<sup>nd</sup> February 2007 Thursday afternoon. We had our coach at 1230 hours; we departed from the sidewalks of the chamber of mechanical engineering office with 30 participants, 10 undergraduate ME students, 10 young/ 10 senior mechanical engineers, we left the city center, to the Baymina 770 MWe combined cycle thermal power plant for a technical excursion, 55 km west of Ankara.

On our early period of departure, I took the initiative, and distributed the sandwiches, sour milk shakes, introduced myself as the member of Energy Commission of the Chamber of mechanical Engineers in Ankara

I explained the thermal power plant which we would be visiting, advised the participants how important/ efficient/ new, the power plant is, then I asked the members to introduce themselves within a few sentences, since I talked that much, nobody said "No".

Baymina Temelli Combined cycle power plant is 55 km west of Ankara city center, on a remote empty landscape.

On our coach ride, I sent SMS messages to the responsible plant manager where we were, and when we arrived to the plant main gate, they were ready to meet us for the plant excursion. We delivered our ID cards received our barges, signed documents for any accident liability to keep the plant immune, we asked to wear our security shoes, safety glasses, safety helmets and then we visited the biggest commercial combined cycle power plant units available on the earth.

They have 2 each General Electric Frame-9F gas turbine- each to generate 250 MWe and each cost \$50 million. 2 each CMI Belgium design- Gulermak fabrication- with supplementary firing forced circulation type heat recovery steam generators - each cost \$15 million and 1 each 300 MWe Alstom delivery 3-stage Steam Turbine - \$60 million plus natural gas inlet facilities plus water treatment- demineralization, water ponds and water cooling systems.

Then the plant engineers invited us to their meeting room and explained the plant details with PC presentations, since the land is in the special flight zone of military planes, plant is requested to use the nearby Ankara creek rather than dry type cooling towers

So, the plant uses the water from Ankara Creek, highly polluted, carrying all dirt of Ankara household disposals, too difficult to clean that highly polluted water

They spent overall 500 million US Dollars for the investment.

They initiated the project in 1998 as feasibility, completed the plant construction in 2004 within net 27 months.

They will receive natural gas from BOTAS national gas distribution company and they will deliver their power generation 700 to 770 MWe maximum to Public electricity distribution company.

They have no power to increase their output capacity, unless requested by public authority.

Although they need "Inlet Air Cooler" for Power Enhancement does that they can increase their power output approximately by 10 % as elsewhere.

Public authority decides how much they should produce, all within certain rules, regulations, agreements and formulas.

System will run for 16 years non-stop, and generate the investors steady income.

Investor French/ Belgium SUEZ company will earn routine income, together with local partner Mimag company which has 5% equity.



We then completed our plant excursion.

We had tea and cookies, thanked our hosts.

Some of the plant engineers were my Journal of Turkish Weekly(JTW) readers.

They asked details of my JTW articles.

We took group photos at the main gate.

Then we returned to Ankara, I took municipality coach to return home.

We showed our colleagues what a good/ efficient, state-of-the art, latest technology combined power plant is.

At home I poured half a glass of a good red dry KalecikKarasi local wine, vintage 2004, for myself for a good accomplishment to congratulate myself.

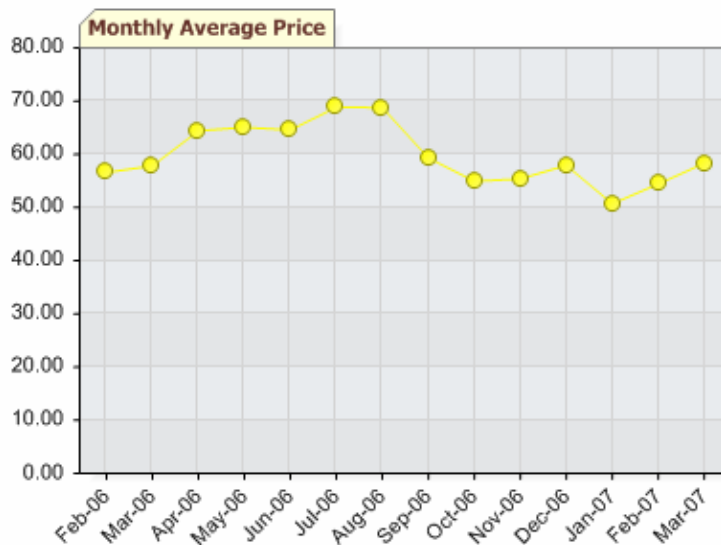
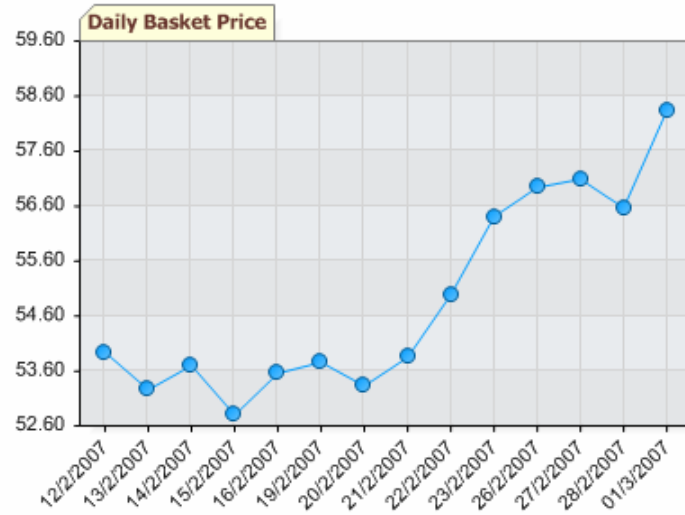
It was a real good job.

Your comments are always welcome.

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## Indicators

### OPEC's Basket Price



## Indicators

Indicative Exchange Rates Announced at 15:30 on 03/02/2007 by the Central Bank of Turkey

CURRENCY		EXCHANGE RATES		EXC.RATES ON BANKNOTES	
		Buying	Selling	Buying	Selling
USD/TRY	1 US Dollar	1.4194	1.4262	1.4184	1.4283
EUR/TRY	1 EURO	1.8684	1.8774	1.8671	1.8802
GBP/TRY	1 British Pound	2.7657	2.7802	2.7638	2.7844

## Turkish Refinery Output Price

Product Name	YTL/TON	YTL/M3	Special Concise Tax	Dividend	Exclusive of VAT	VAT	VAT included price	Validity Date
<b>Unleaded Petrol 95 OCTANE</b>			<b>YTL/M3</b>	<b>YTL/M3</b>	<b>YTL/M3</b>	<b>YTL/M3</b>	<b>YTL/M3</b>	
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
<b>Jet Fuel</b>			<b>YTL/M3</b>	<b>YTL/M3</b>	<b>YTL/M3</b>	<b>YTL/M3</b>	<b>YTL/M3</b>	
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
<b>Kerosene</b>			<b>YTL/M3</b>	<b>YTL/M3</b>	<b>YTL/M3</b>	<b>YTL/M3</b>	<b>YTL/M3</b>	
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
<b>Diesel 7000</b>			<b>YTL/M3</b>	<b>YTL/M3</b>	<b>YTL/M3</b>	<b>YTL/M3</b>	<b>YTL/M3</b>	
İzmit	807,84	682,62	834,50	1,27	1.518,39	273,31	1.791,70	02/03/2007
İzmir	807,84	682,62	834,50	1,27	1.518,39	273,31	1.791,70	02/03/2007
Kırıkkale	828,87	700,40	834,50	1,27	1.536,17	276,51	1.812,68	02/03/2007
Batman	842,88	712,23	834,50	1,27	1.548,00	278,64	1.826,64	02/03/2007
<b>Diesel 50</b>			<b>YTL/M3</b>	<b>YTL/M3</b>	<b>YTL/M3</b>	<b>YTL/M3</b>	<b>YTL/M3</b>	
İzmit	815,72	689,28	927,00	1,27	1.617,55	291,16	1.908,71	01/03/2007
İzmir	815,72	689,28	927,00	1,27	1.617,55	291,16	1.908,71	01/03/2007
Kırıkkale	836,56	706,89	927,00	1,27	1.635,16	294,33	1.929,49	01/03/2007
<b>Fuel Oil 4</b>			<b>YTL/TON</b>	<b>YTL/TON</b>	<b>YTL/TON</b>	<b>YTL/TON</b>	<b>YTL/TON</b>	
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
<b>Fuel Oil 6</b>			<b>YTL/TON</b>	<b>YTL/TON</b>	<b>YTL/TON</b>	<b>YTL/TON</b>	<b>YTL/TON</b>	
İzmit	392,07		204,00	1,42	597,49	107,55	705,04	02/03/2007
İzmir	392,07		204,00	1,42	597,49	107,55	705,04	02/03/2007
Kırıkkale	399,08		204,00	1,42	604,50	108,81	713,31	02/03/2007
Batman	399,08		204,00	1,42	604,50	108,81	713,31	02/03/2007

Source : [www.tupras.com.tr](http://www.tupras.com.tr)