

PN-ACE-794

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Romania
Downstream Petroleum
Restructuring Project

Summary of the Rationalization and Critical Investment Study and Recommendations for Implementation

Prepared under Contract for

**United States Agency for
International Development**

DHR-0030-C-00-5016-00

Energy Restructuring and Regulatory
Reform in Central and Eastern Europe
and the Baltics

In Cooperation with

World Bank

22934-009-008

INTRODUCTION

The United States Agency for International Development (USAID) has been providing technical assistance to the Government of Romania (GoR) to help bring about structural reform of Romania's energy sector and to support the GoR's World Bank borrowing programs. USAID has directed its technical consultant, Bechtel International Corporation, to review the current operation and restructuring strategy of the downstream sector of Romania's petroleum industry, perform an optimization analysis of that sector's current operations, determine the minimum critical investments to increase profitability and market responsiveness, and recommend the most appropriate privatization strategy.

In March 1996, the Bechtel team delivered a report – *Romania Downstream Petroleum Sector Restructuring Project - Rationalization and Critical Investments* – which summarized its findings. This document presented calculations of the specific costs of operating the sector in a non-optimized manner and recommended a strategy and implementation program for restructuring. The full narrative report was submitted in June 1996.

The purpose of this paper is to summarize the key economic issues and optimization recommendations contained in the earlier, more detailed, reports. The conclusions from these reports are summarized here in the form of the *critical issues, recommended solutions*, and then the most appropriate *action steps* for restructuring. The critical issues are the result of a combination of factors, including the legacy of the prior system of centralized planning and heavy industrialization, the emergence of a market-based economy, the need to participate in the global energy markets and the proper allocation of the scarce resources of the government.

The recommendations presented here are based on careful analysis by unbiased specialists in petroleum economics and petroleum refining technology, and take into account the specific needs of Romanian industry and consumers. The action steps are the suggested implementation program. Although these steps will undoubtedly have short-term negative consequences (e.g., worker displacement and higher prices for certain products), their implementation will result in the near term elimination of subsidies and eventually a healthy and financially self-sufficient sector.

BACKGROUND

Romania has a large and expanding economy with critical requirements for energy, including the full slate of refined petroleum products. As a matter of economy policy and for wealth creation, the nation should expand its industrial base and add the maximum value possible in the petroleum refining process. But if these activities are performed uneconomically when reliable alternatives exist, they can do more harm than good.

The GoR is currently considering an ambitious reform program involving private sector development. One of the cornerstones of this program is the restructuring of the downstream sector. When taken as a whole, this sector is a significant drain on the government's resources and is not meeting the energy needs of the Romanian people in an economically sound and environmentally sustainable manner.

The downstream petroleum sector in Romania is currently operated in an uneconomic manner. Because of domestic crude price controls, upstream producers receive too little revenue and this prevents them from adequately managing or replacing their reserves. High refinery gate prices allow the refineries to keep excess capacity and staff in place. Consumers do not receive the necessary service, and the GoR bears the impact of funding the subsidies and foregoing tax revenues on missing profits.

Petroleum is a global commodity business with many suppliers and customers. Crude and petroleum product prices are set strictly by market principles. Petroleum product markets are among the most efficient in terms of setting prices based on low-cost providers. The global refining industry is currently in a prolonged period of overcapacity and very low returns. In this market, with capacity exceeding demand, an exporter of refined petroleum products with high operating costs will most certainly sell product at a loss.

Romania's refinery sector is very large and sophisticated and is configured to fully meet domestic demand as well as produce a significant amount of product for export. The nameplate capacity of the refineries is approximately 34 million tonnes per year (tpy) whereas current domestic demand is only 15 million tpy. A very large fixed cost is required to maintain this large design capacity and when these refineries are run at low capacities (as they are currently), the result is high relative operating costs.

In addition to the capacity imbalance, the refineries have full conversion capabilities, whereas the domestic demand is slanted to heavier, low-value products, which do not require such complex refining. These design points are a legacy of decisions made many years ago and are based on conditions that no longer exist. Consequently, the current system, as presently configured, cannot profitably serve either the domestic market or export markets.

The current system incurs annual losses of \$300 million to \$450 million, depending on the market assumptions used. The summary report estimated current GoR subsidies to the sector of approximately \$450 million per year. These subsidies amount to about \$160 million per year in excess fixed operating costs to support surplus refining capacity, an additional \$160 million economic loss due to import of excess quantities of crude and reexport of refined products, and a further loss of up to \$130 million that could be made up through a combination of various technical factors such as optimizing refinery cut points, revamping hydrotreaters, and installing desulfurization capacity.

The system can be restructured to turn these losses into a net profit. The costs of this restructuring will be high both in monetary terms and in human terms for the workers, customers, and stakeholders. But if the implementation of the program begins immediately and is done properly, the restructuring costs can be fully recovered in a short period of time, perhaps as little as one year.

A basic premise of the restructuring program is that the Romanian refining and petrochemical sectors can neither profitably export products nor be reconfigured in any manner to become a profitable exporter. This situation is not the result of current design, system operation, or system management, but is the consequence of operating in a global commodity business where many

suppliers have fundamental, strategic advantages, such as unlimited domestic crude, huge economies of scale, global diversification of assets and resources, etc

A competitive Romanian downstream sector has a definite strategic advantage over any import supplier in serving the domestic market, and a restructuring strategy must be built around the concept of supplying the domestic market in an optimal manner (e.g., permanently reducing fixed costs, running the cokers at full capacity throughout the year). Thus, the existing configuration must be modified to respond to the current and projected future domestic market. The current strategy of operating in a manner to preserve the capacity and staff levels of the current system, fully serving the domestic market in a non-optimized manner, and exporting the surplus product is not economic.

IMPLEMENTATION PROGRAM

Several critical steps must be taken in sequence to allow the Romanian downstream petroleum system to participate profitably in a global commodity market. Some of these requirements are external to the petroleum sector itself and will require a comprehensive GoR commitment to reform. A partial approach to the restructuring may lessen the pain in the short term, but will not solve the fundamental issues and will ultimately increase the costs of proper restructuring in the future. The following restructuring steps presented below are necessary to achieve financial self-sufficiency for the sector, make meaningful progress in privatization, and meet the requirements for EU integration.

The critical steps required are listed here in sequence.

- Step 1 – Lift price controls on domestic crude, ex-refinery (wholesale), and retail product prices
- Step 2 – Liberalize restrictions on imports of refined products
- Step 3 – Provide a social safety net for displaced workers
- Step 4 – Reorganize the commercial structure of the refineries
- Step 5 – Implement refinery restructuring through closure of excess capacity and a reduction in crude imports and product exports
- Step 6 – Offer refineries for sale to strategic buyers, packaged with retail stations

The background of the issues behind these steps and the recommended solutions are detailed below.

Step 1 Lift price controls on crude oil and petroleum products as quickly as possible

Issue *The GoR provides significant subsidies to the downstream petroleum sector, and yet the sector is continually decapitalized.* Decapitalization of the refineries results when fixed prices set for products do not cover the rapidly changing cost of replacement crude and operating expenses. The near-term goal of the GoR downstream sector rationalization program is to eliminate real and invisible government subsidies to the sector and to enable the sector to achieve financial self-sustainability. These subsidies are required because of various uneconomic

behaviors brought on by price controls. The principal contributor to the decapitalization of the sector is the lag in the resetting of controlled prices to the free market, border equivalent. The current method of government-imposed price controls on petroleum is not capable of responding adequately to inflation, commodity price shifts, and supply and demand factors.

Approximately 50 percent of the crude consumed by the refineries is imported and must be purchased at US dollar market prices in cash. Free market crude prices change substantially every day. The crude passes through several legal entities, the refineries process it and sell the products to PECO, which resells these products into the local lei market. Once the collections flow back to pay for replacement crude, the prices and exchange rates will probably have moved to the point where the entire cycle is unprofitable. The current system of periodic changes set by the Ministry of Finance to the controlled crude and product prices is inadequate and cannot respond quickly enough to this volatile market.

Recommended Solution. Implement a system that automatically resets prices at least once a month in a way that eventually marks them fully to the market. This system should be simple, easy to implement, and rigidly followed. During the transition from the current method of fixed prices to free market pricing, the BECEIP-recommended system of price bands set by a variance over costs could be used to favor the most efficient producers and allow the refineries to optimize their own product slates.

Action Step *Move to a system of free market pricing for crude and petroleum products by implementing the BECEIP or a similar transition system using price bands set at an agreed margin over or under costs.* As the refining and distribution system becomes more competitive, the lower cost producers will operate at full capacity and the higher cost producers will be forced to shut down. Over time, the band will be expanded to fully bracket market prices, at which time the transitional system will no longer be necessary.

Step 2 Liberalize or eliminate the restrictions on the import of all refined petroleum products

Issue *Romanian refineries are shielded from import competition. This domestic monopoly allows the high costs and excess capacity of the system to remain in place.* Import restrictions are seen as a method of promoting local industry and raising revenue for the government. However, history has shown that high tariffs or import bans do not accomplish these goals, but instead encourage black markets and shield domestic suppliers from competition. Currently, Romanian refineries cannot compete with many classes of imported products owing to

- High fixed costs due to excess capacity
- High operating costs due to large employee rolls, lack of investment in new technology
- Low maintenance of existing systems

A domestic refinery operated in an optimal manner will have a strategic advantage over an importer. With free trade in petroleum imports and decontrolled prices, Romanian refineries will rapidly adopt the most efficient operating methods in order to become more competitive. Domestic refineries will stop producing products that can be imported more cheaply, crude import requirements will be lower, and therefore hard currency requirements will be reduced.

After restructuring, Romanian refineries will have an advantage over importers without the necessity for import restrictions or tariffs

Recommended Solution Reduce restrictions on imports of any refined products and allow all suppliers equal access to the distribution system. Although this solution will idle excess capacity, which then must be eliminated (meaning refinery closures and displacement of excess workers), the overall effect will be positive since the remaining refineries will be stronger and self-sufficient, government subsidies to the sector will cease, and tax revenues will be generated.

Action Step *Implement the necessary programs to lift restrictions on legal imports of refined products.* As part of this import liberalization, allow the refineries to buy crude from any source and reduce tariffs on petroleum and petrochemical imports to minimal amounts.

Step 3 *Provide a social safety net for the excess workers created by the restructurings and refinery closures.*

Issue *The refineries have extremely high and excessive employment levels.* Steps 1 and 2 will inevitably lead to permanent reductions in refinery operating levels, closure of certain refineries, and the need to shed workers at the remaining refineries in order to reduce costs. The workers affected will be specifically trained in petroleum refining, will be concentrated in specific geographic areas (Ploiesti will be the most significant case), and will not have any easy option for new employment. Since these workers are likely to be unemployed for a significant period, they will need severance pay, counseling, job training and relocation and financial assistance to replace their lost wages.

Recommended Solution Concurrent with the liberalization of imports and decontrol of prices, develop and implement a social safety net for the displaced workers. This program will need to provide cash benefits to the worker, including a severance payment and unemployment payment for an extended period. More importantly, the GoR will need to provide other forms of assistance to the workers, including training in other work disciplines, assistance with mobility to other job markets, and social services such as counseling and medical care.

Action Step *Utilize the social safety net programs under development to the fullest.* Social safety net programs are at present being developed by the World Bank and other donor agencies and can tie in well with the anticipated refinery worker shedding and closures. Any workers laid off from refinery closures should be given the full severance benefit package currently being offered to displaced workers. Because no program, no matter how extensive, will fully meet the needs of the displaced workers, the problem of laid off workers will be one of the most difficult aspects of restructuring.

Step 4 *Reorganize the commercial structure of the refineries to allow for the implementation of a sector-wide restructuring, selective decommissioning, and privatization program.*

Issue *The existing commercial structure and obligations of the large refineries will not permit a meaningful restructuring or privatization program to proceed.* While the individual refineries are

all separate business units with different shareholders, the restructuring issues must be implemented on a sector-wide basis, to the benefit of certain refineries and the detriment of others. Additionally, certain liabilities of the refineries (e.g., large accounts payables to other state agencies as offsets against receivables and the matter of environmental liabilities) can be resolved only at the federal level.

The State Ownership Fund is at present contemplating certain restructuring and privatization strategies, the Ministry of Reform is interested in accelerating the reform process by dealing directly with the largest loss making enterprises, the public has exchanged mass privatization coupons for shares in companies that may be shut down, and the Romanian National Oil Company (ROC) continues to exert effective monopoly power over the refineries with regard to crude purchase and allocation and product sales. No buyer could possibly step into this current system by purchasing a refinery and be confident of receiving a return on his investment.

The refineries all participated in the mass privatization program, and 49 percent of the shares were made available. The general population was offered the opportunity to exchange coupons for shares in each of the refineries, prior to a sector-wide restructuring. Decommissioning of any refinery will make the shares of that refinery worthless and will lower public confidence in the reform system. The shareholders in the decommissioned refinery will need to be protected from events beyond their control.

Recommendation Create a new transition holding company with a life not to exceed one year that will implement the restructuring program. It has been suggested that the ROC can fulfill this role. However, as currently constituted, the ROC has too much power and an indefinite life. It also has too much involvement in setting the policy of the operation of the downstream sector. Thus, it is unlikely the ROC, as presently formed, is the appropriate agency for implementing restructuring.

Action Step *Create a transitional agency with complete responsibility for restructuring the downstream sector and having custodial ownership of the shares.* If it is to serve as the restructuring agency, the ROC should be either disbanded or completely reconstituted in an entirely different manner. This restructuring agency should be outside of the Ministry of Industry and Trade (MoIT). The shares of the individual refineries should be aggregated and exchanged for the new shares in the agency.

Step 5 *Implement a technical restructuring of the refining sector that reduces the fixed costs of the system. Reduce the volume of imported crude and resulting export products through the system.*

Issue *Romanian refinery fixed costs are unnecessarily high and noncompetitive.* These high costs are essentially the result of the fact that refineries are operating at less than half of their nameplate capacity. In the reply document dated February 5, 1997 and issued by the MoIT to the World Bank Aide Memoire, the MoIT, the ROC, and the refineries propose shutting down the second train at each refinery, but leaving all five large refineries in operation. Operating five large refineries at the lower levels of necessary throughput results in gross inefficiency, high manufacturing costs, and poor product yields. This will only slightly reduce in the current fixed costs (depreciation, staffing, internal energy consumption, insurance, etc.), making the refineries noncompetitive on a free

market basis. These refineries cannot compete in this manner with low-cost importers. As a result, present subsidies to the refineries in question will be required indefinitely.

When all costs are considered, product exports are sold at a loss. Large quantities of imported crude oil are processed only to be reexported as product, resulting in large and avoidable economic losses, including unrecoverable transportation costs. While product exports do generate hard currency to offset the hard currency requirements of imported crude, the cycle is done at an economic loss. According to the analysis performed in the Bechtel Rationalization Study dated March 1, 1996 and using average 1995 crude and product prices, the net margin on processing imported crude and then exporting the products is a negative \$12.22 per tonne.

While this negative gross margin does not account for the specific product production breakdown in Romania (high value-added gasoline is exported and low value fuel oil is sold domestically at a higher than market controlled price), it is nevertheless true that simply importing less crude and eliminating surplus product exports would increase the profitability of the sector and reduce hard currency requirements. We estimate annual losses due to the current excess import/export balance to range from \$30 million to \$140 million.

The high margin conversion capacity is underutilized. The MoIT recommends shutting down distillation capacity to 18 million tpy, but retains conversion capacity at all five refineries (e.g., the FCC complexes, which have a current capacity of 4.9 million tpy, will be retained). If the maximum recommended throughput is used and all five large refineries are operated, the maximum utilization rates for the high-value conversion complexes will be only 72 percent by 2000 and rise to just 83 percent by 2005 – far below the optimum level of utilization for such important facilities. Low utilization has several negative consequences: low product yields, high energy consumption, and inferior product quality.

In addition, at the direction of the GoR, the refineries often shut down their cokers entirely in the winter to maximize production of heavy fuel oil (HFO). This operating cycle generates economic losses for the refineries which are not recovered in the sale of this HFO.

Recommendation As stated in the March 1, 1996 report, *Rationalization and Critical Investments*, two of the large refineries must be shut down if the refineries as a whole are to operate profitably. In the short term, consider permanently decommissioning the most inefficient large refinery, and decommissioning, mothballing, or selling the next least efficient refinery. This would leave only three large refineries operating, but up to 4.0 million tpy of conversion capacity (of the current 4.9 million tpy) would be retained. Under these operating throughputs, the FCC complexes would operate at 88 percent of capacity by the year 2000 and 100 percent of capacity in 2005, well above the utilization rate if five plants operate.

Because conversion capacity is the heart of the Romanian refineries, high utilization of these valuable facilities has a greater impact than most other factors on the economic viability of the refineries. The conversion facilities should be optimized to the maximum extent possible. Operating three, rather than five, large refineries is the best way to optimize the refining subsector and results in the most progress in reducing fixed costs.

The most inefficient refinery is Petrotel in Ploiesti. With the decommissioning of Petrotel, Ploiesti will continue to be supplied by the Petrobrazi refinery. The lube plant associated with Petrotel can operate as a stand-alone plant. As the center of the petroleum industry in Romania, Ploiesti is in a better position to absorb the workers displaced.

The current discussion in Romania centers on shutting down the Petromidia refinery. Petromidia has good internal operating costs relative to the other large refineries and is well configured. Its financial performance is negatively affected by the large amount of higher cost imported crude it processes. Since the domestic crude suppliers would charge border prices for their crude if permitted to do so, Petromidia is being unfairly penalized in this comparison.

While mothballing Petromidia is a positive step, it is not the most economically advisable one, and will not advance the restructuring of the sector as rapidly as shutting Petrotel. Despite mothballing of Petromidia, foreign investment and potential privatization of the refineries will not occur unless the price and import restriction reforms discussed in Steps 1 and 2 are also implemented.

The choice of the second refinery for shutdown or immediate privatization can be made based on the full range of factors, such as interconnected petrochemical plants, distribution system impacts, social issues, and privatization potential. Decommissioning one refinery and taking a second out of production will strengthen the remaining three to the point of genuine profitability, which will eliminate subsidies.

As part of a capacity and throughput reduction strategy and resulting continuous operation of conversion capacity, HFO will have to be stored during the low-demand summer season to provide adequate stocks for the higher demand (and thus more expensive) winter season. This strategy will require the construction of heated storage facilities and modifications to the transportation network, and will tie up significant working capital. Our calculations show that the favorable economics of this scenario allow costs to be recovered in full in less than 18 months, making it vastly preferable to the current strategy of meeting summer HFO demand by producing excess white product for export and then shutting down cokers in the winter to meet the higher HFO demand.

Action Steps *As recommended in the March 1996 report, Rationalization and Critical Investment, decommission the Petrotel refinery as soon as possible and either take a second refinery out of production or privatize it.* Decommissioning of Petrotel can begin immediately once the distribution and social safety net requirements have been put in place. A decommissioned refinery may have a reasonable resale value as a complete production unit. For example, China and India have purchased production units at a significant premium over scrap value to be moved to a new location and reconditioned. If it is not possible to sell the refinery as a production unit, most of the equipment will have scrap value to the extent that the direct decommissioning costs can be covered.

The environmental aspects of the decommissioning will be significant, especially in Ploiesti. The environmental issues must be dealt with on a sector-wide basis and at the federal level. Privatization of any downstream assets will be highly unlikely if a buyer has to assume the environmental consequences of the past operation of a given refinery.

Construct a heated storage facility for HFO to meet the gap between normal production of three large refineries in the winter and total demand The MoIT capital cost estimate for such a program is \$52 million. Although this is a significant up-front cost, it results in a permanent savings fully recovered in less than 18 months.

Step 6 Implement a refinery privatization program by offering for sale a major refinery packaged with a group of retail sites and a guarantee of access to the distribution system

Issue *Privatization of the major downstream assets is not currently achievable* Privatization is highly desirable as it will transfer the government's financial obligations of the downstream sector to private industry and allow for rapid adoption of competitive practices. However, the refineries operate at a loss when evaluated on a full-market-price basis, thus, they currently have no value and will not attract any reliable buyers. From a buyer's perspective, there are too many uncertainties with regard to price controls, distribution access, and continued operation of excess capacity to put a positive value on any of the major refineries. In addition, the profit margins for competitive refineries in the eastern Mediterranean region are at break-even levels, making the huge capital investment required to purchase and upgrade a Romanian refinery highly unlikely.

From an outside investor's perspective, the most profitable aspects of the petroleum industry are supplying crude and retailing products. Additionally, transportation of refined products over significant distances is not economic. Petroleum refining is a necessary and expensive aspect of the downstream sector, but at best is only marginally profitable on a stand-alone basis. Thus, buyers would consider investing in a refinery (assuming prices in this market are decontrolled) only if they needed a refinery to help process low-cost crude to a nearby market or to competitively supply a system of nearby retail outlets.

Recommendation. Offer a refinery and package of retail sites for complete privatization. Implement a common carrier operating program for the distribution system to give all customers equal access. The Petromidia refinery is the obvious choice for near-term privatization. It has the best fundamental economics, it provides balanced conversion capability, producing a high yield of gasoline, and its fixed costs are the lowest and excess worker rolls the smallest. Because the refinery operates primarily on imported crude and generates large losses under the current environment, privatization will meaningfully reduce the total GoR subsidies.

A reliable buyer – meaning a well-capitalized strategic investor with staying power and the expertise to reduce fixed costs, upgrade equipment, and meet EU environmental standards – would likely be able to operate the refinery profitably if he could supply a significant and nearby retail system and have guaranteed access to the distribution system to supply any other buyer.

Action Step *Combine 50 or more large-volume PECO stations in the greater Black Sea region with the Petromidia refinery and offer the package for sale* The privatization process will require screening and then hiring an international investment banker to manage the sale process, attract and screen buyers, and evaluate offers to the tender. A significant amount of preparatory legal, accounting, and due diligence work will have to be completed prior to offering the package for sale, and the costs for this work will be significant. Substantial technical assistance and funding will be

needed to bring the tender properly to the market. The process also will be time-consuming, taking a minimum of one year from initiation to completion of the sale.