

The market for LPG/Propane and impact of approved prices on the domestic and the commercial industrial sectors.

(June 2010)

1.0 The market for LPG in Malta

1.1 Supply

The importation of gas to supply domestic and industrial demand is liberalized and falls under the remit of the MRA in terms of regulation. The distribution network comprises a number of sellers, with each distributor being allocated to a pre-defined area.

1.2 Demand for LPG

The market for LPG is segmented into the markets for different cylinder sizes. LPG is supplied in cylinder sizes of 10kg, 12kg, 15kg, 25kg and in Bulk. Since different cylinder sizes are consumed by different entities for different purposes, it is necessary to understand these consumption patterns if we are to identify the impact of a price increase on consumers.

1.2.1 Consumption by the domestic sector.

Research on the market for LPG in Malta¹ indicates that all 10kg and 12 kg cylinders are purchased by the domestic sector. Only 80% of the 15 kg cylinders are sold to households. Households use LPG for cooking and heating purposes

1.2.2. Commercial/Industrial sector

The same study indicates that all 25kg cylinders and bulk LPG are purchased by private enterprise. This sector also accounts for 20% of the sale of 15kg cylinders.

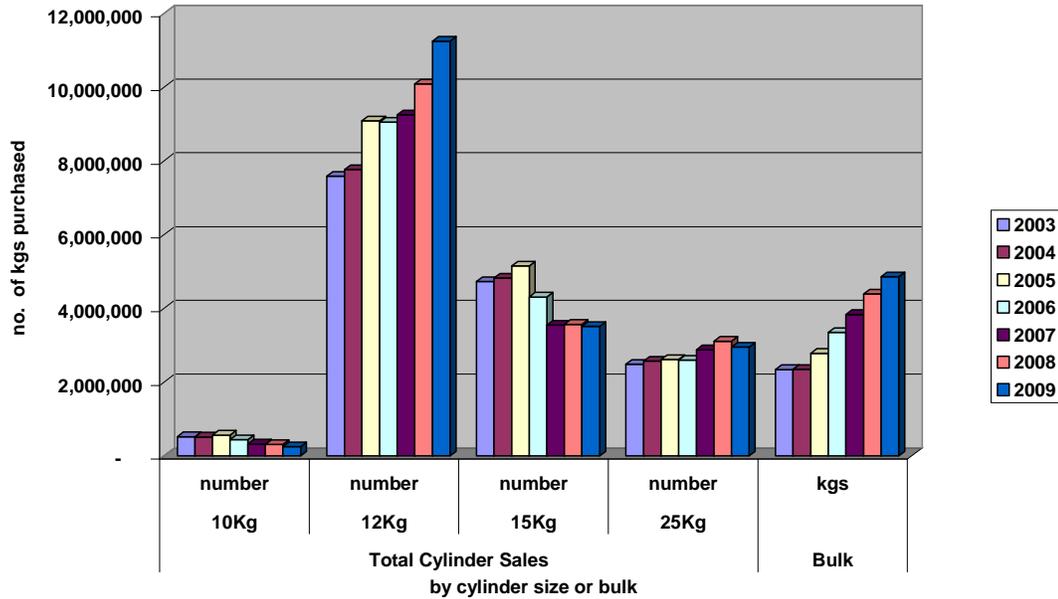
1.2.3 Market demand for LPG

The sales of LPG by 10kg, 12kg, 15kg 25kg and bulk sales are given in Fig 1.

¹ Study on the Liquefied Petroleum Gas Sector drawn up in 2006 by the MRA

Fig 1

Demand for LPG in Malta



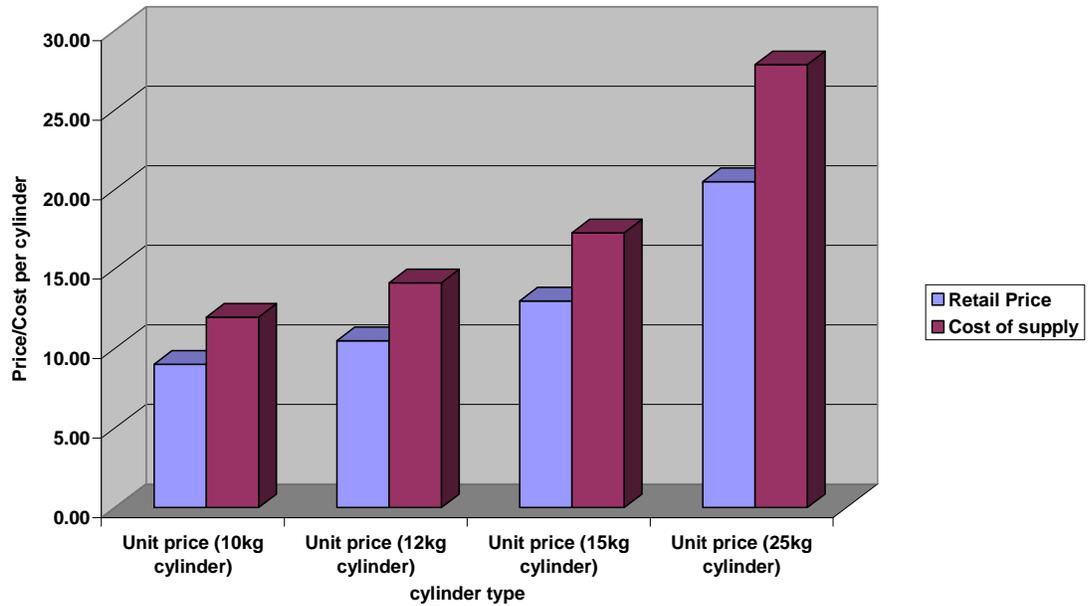
2.0 Prices of LPG

2.1 Retail prices vs Cost of LPG

The retail prices of LPG were relatively stable until April, 2009. Till then, LPG prices were highly subsidized by government that paid for most of the costs of overheads and fuel prices.(Fig 2) The current price of LPG does not cover the full cost of supplying it to the market.

Fig 2

Retail vs cost per cylinder



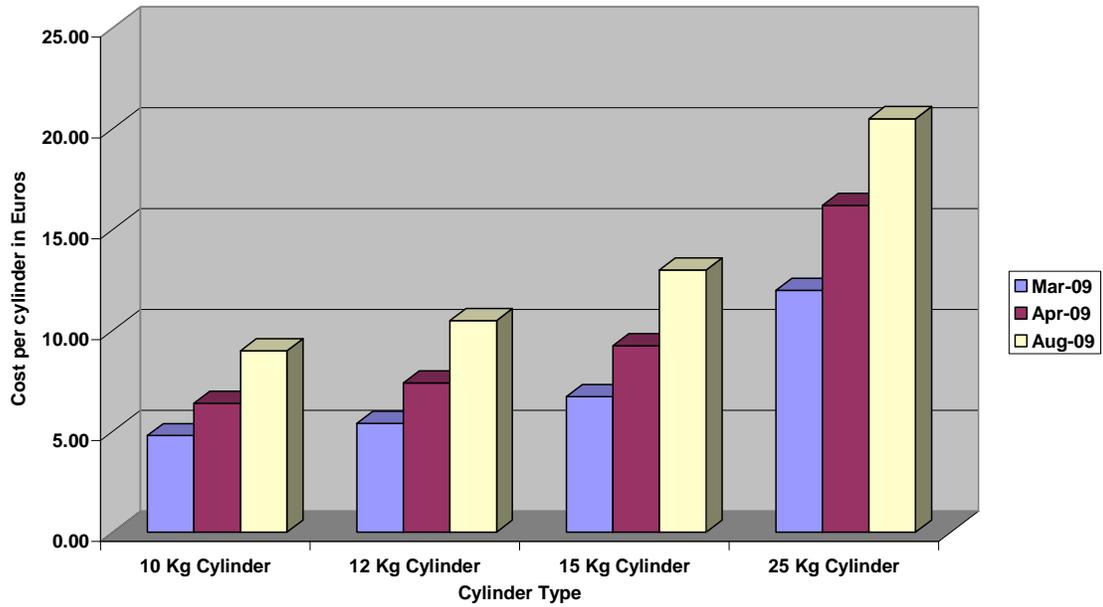
2.2. Retail prices of LPG

Retail prices were revised twice since April 2009. Before April, 2009, a 12 kg cylinder was sold at €5.40. The retail price rose to €7.40 on the 1st April 2009 and to €10.50 on the 3rd August 2009.

Fig 3 gives the changes in the price of the LPG sold in 10kg, 12kg, 15kg and 25 kg cylinders over this period.

Fig 3

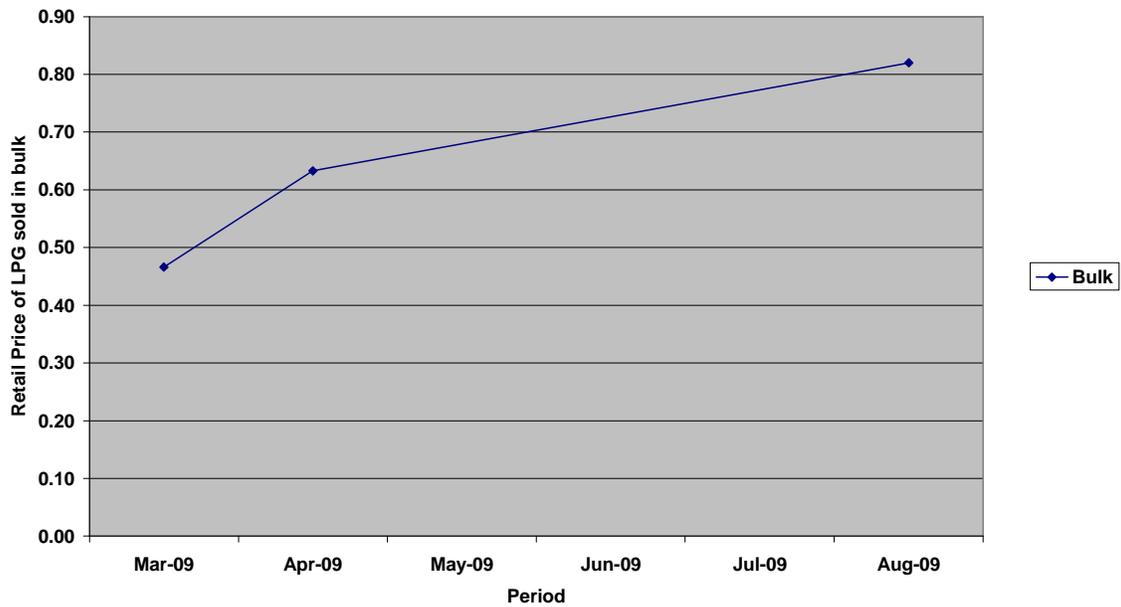
LPG retail prices



The price increases of LPG sold in bulk are given in Fig 4

Fig 4

Retail price of LPG sold in Bulk



3.0 Approved Prices of LPG/propane

Following a price review carried out by MRA, LPG will be sold at the following recommended prices given in Table 1

Table 1

Approved Prices of LPG/Propane in Euros

	10kg cylinder	12 kg cylinder	15 kg cylinder	25kg cylinder	bulk/kg
LPG	11.80	13.90	17.00	27.30	1.10
Propane	11.20		16.20	26.00	1.10

3.1 Fundamental principles

The following fundamental principles were used as a basis for the current LPG price review:

The principles used as a basis of the current LPG price review may be summarized as follows:

- **Legality** - Price structures and methodologies adopted should be in accordance with applicable legislation.
- **Sustainability and Profitability** - The proposed prices should enable Liquigas Malta Ltd to achieve a rate of return on capital employed that allow for a sustained and acceptable fixed asset replacement and upgrade policy.
- **Non-discrimination** - The proposed prices must not unjustifiably discriminate between comparable groups of consumers.
- **Transparency** -The entire price review should be transparent. Consumers are to be provided with sufficient information to enable them to secure an acceptable understanding of how:
 - The proposed prices were computed by Liquigas
 - The Malta Resources Authority's review and approval process

4.1 *Factors that impact on demand for LPG by the domestic sector:*

Demand for LPG depends on weather conditions, household disposable income and prices of substitutes e.g. electricity since households may switch to cooking and heating appliances that run on electricity other than gas.

A study carried out by MRA indicates that for every increase of 1 degree Celsius, demand for LPG falls by about 5.9%. Changes in disposable income will result in equal

changes in demand for LPG². There is, however, no evidence of any perceptible price elasticity with respect to the demand for LPG. In fact the price elasticity of demand is estimated at -0.11³.

The conclusion of this study implies that it is likely any price increase of LPG will have to be close to fully absorbed by the household disposable income, as there seems to be no substitution possibilities, at least in the immediate and short period.

The result of the study implies that if total annual household expenditure on Gas amounts to €7.41 million⁴, an increase in the price of gas amounting to 10% will result in close to (€0.741 million) 10% increase in household expenditure on LPG. This means that household disposable incomes will fall by an equivalent amount. This is equivalent to around €1.85 per person or €5.29 per household annually.

4.2 Factors that impact on demand for LPG by the commercial/industrial sector

The demand for LPG by the commercial/industrial sector is influenced by price, GDP (economic activity) weather conditions and price of substitutes. Research carried out by MRA concluded that weather conditions explain only 9% of changes in the commercial LPG demand. Commercial LPG demand falls by 1% as a result of 1 degree Celsius increase in temperature.

Demand for LPG in this sector is more sensitive to changes in economic activity with the respective GDP elasticity of demand equals to 1.19. This means that 1% increase in GDP brings about at 1.19% increase in commercial demand of LPG.

Demand for LPG of the commercial/industrial sector is not price elastic. An increase in price of 1% will lead to only 0.204% fall in demand for LPG implying that any price rises will have to be absorbed *almost* completely by the commercial enterprises.

It is estimated that given the low sensitivity to price changes, 1% rise in the price of LPG will lead to an increase in expenditure of 0.796% multiplied quantity demanded⁵. Given that the total demand for LPG by the commercial/industrial sector in 2009 was 8,503,762 kg in 2009, it is estimated that 10% price increase will cost industry about €0.677 million.

5.1 Projected impacts of the proposed increases in the price of LPG on the domestic sector

² Income elasticity is near unity (1.02) meaning that 1% increase in income will result in about 1% increase in the quantity demanded of LPG.

³ The price elasticity of demand is estimated at -0.11 meaning that 1% change in price will bring about 0.11% fall in quantity demand of LPG.

⁴ The latest Household Budgetary Survey carried out by NSO indicates that Maltese Household spend about €7.41 million (equivalent to 0.23% of their total annual expenditure amounting to €3.223 billion) on Gas.

⁵ Change in expenditure as a result of a change in price is calculated using the formula $(1-e)Q$ where e = the price elasticity of demand and Q refers to the quantity demanded.

Table 2 gives an estimate of the impacts of the projected LPG price increase on expenditure on LPG by Households. The projected annual increase in total expenditure to be incurred by households amounts to €4.0 million. This is equivalent to an average increase in costs of €28.58 per household per annum

Table 2

SUMMARY OF THE PRICE IMPACT ON COSTS TO BE INCURRED BY THE DOMESTIC SECTOR	
	MRA Approved LPG prices
Increase in the Annual Expenditure on LPG by the Domestic Sector for 10KG Cylinders	€68,684
Increase in the Annual Expenditure on LPG by the Domestic Sector for 12KG Cylinders	€3,186,188
Increase in the Annual Expenditure on LPG by the Domestic Sector for 15KG Cylinders	€747,836
Total Increase in the Annual Expenditure on LPG by the Domestic Sector¹	€4,002,708
Increase in Annual Expenditure per Household ²	€28.58
¹ The price elasticity of demand for LPG is equal to 0.11, hence it is being assumed that price increases are wholly absorbed by domestic consumers	
² Total number of households amounts to 140,075 units as per Household Budgetary Survey 2007, NSO	

2.2 Projected impacts of the proposed increases in the price of LPG on commercial/industrial sectors

Table 3 gives the projected additional costs to be incurred by the commercial/industrial sector. Costs are based on the sales for the year 2009 and a price elasticity of demand of 0.204 and the prices being proposed. It is expected that expenditure on LPG will rise by €1.6 million as a result of the June price review. This is equivalent to between 29.5% of the current expenditure of €5.41 million being made on LPG by this sector.

Table 3

Impact of proposed increase in the price of LPG on the commercial/industrial sector

15 kg cylinders ⁶ Δ in expenditure	€11,448
25 kg cylinders Δ in expenditure	€31,364
bulk sales Δ in expenditure	€1,555,158
Total additional annual costs	€1,597,970
Present expenditure on LPG ⁷	€5,410,000
% increase in cost	29.54%

⁶ Workings are based on actual cylinder sales in 2009.

⁷ NSO figures