



ADVISORY ASSISTANCE TO THE MINISTRY OF ENERGY OF GEORGIA

# **WHITE PAPER: Impact of Natural Gas Price Change on Georgia: Ranges of Estimates**

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## **DISCLAIMER**

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**WHITE PAPER:  
Impact of Natural Gas Price Change on Georgia:  
Ranges of Estimates<sup>1</sup>**

In January 2006 the prices of pipeline gas delivered from Russia to Georgia went from \$65/1000m<sup>3</sup> to \$110/1000m<sup>3</sup>. It is believed that future years may see further increases of a similar magnitude, though some also speculate that the price may return to previous lower levels. This potential variation may have further impacts on gas prices within Georgia. This revision to our Gas White Paper provides tables of estimates of the absolute and percentage impacts of different price levels, increasing by \$50 increments. Thus, we estimate impacts of gas prices at all of \$110/1000m<sup>3</sup>, \$160/1000m<sup>3</sup>, 210/1000m<sup>3</sup>, \$260/1000m<sup>3</sup> and \$310/1000m<sup>3</sup>.

In this analysis we follow the structure of our earlier note. Part I.A. estimates estimate of the impact of that price change on Georgia, based on the differences in price that would result from using actual and previously forecasted volumes. Part I.B. then compares those impacts to various national income and economic measures.

We omit here the longer term analysis previously found in Part II, as that analysis has been expanded and incorporated into our "Gas Strategy for Georgia" analytical documents. The conclusions of that study are not affected by the computations provided here.

We use here the same actual and forecasted numbers as used in our December 2005 study. On general economic assumptions, one would expect that the price increase would have induced a substitution effect reducing use of natural gas compared to the forecasted volumes. However, previous forecasts of increased volumes of gas use for power generation reflected an expected increase in use, in proportion to the capacity of the planned new Energy Invest CC units. However, in January through April 2006 (the period for which we have actual data), those units operated at only about 5% of their capacity. At the same time, in 2006 the pre-existing units at Gardabani and Mktvari were operated at 134% above their kwh output levels in 2005 for the January – April period – these units generated a combined sum of 540,074,314 kwh in 2005 and 724,358,056 kwh in 2006. We believe that these facts reflected the unique weather conditions of the winter of 2006, the actually available units at different times in that period, the facts of the unusual supply interruptions, the unique combination of internal transmission problems, and only in small part, price. The price effect, if present, could account for the reduced expected use of the Energy Invest units price they were actually available. But as we do not have data with sufficient clarity, given the uncertainties of that period, we do not here adjust the data used in 2005 to reflect changes in actuals for early 20056.

**Part I.A. Current and Projected Gas Use and Gas Cost in Georgia:**

Tables 1, 2 and the first page of 3 below repeat the same tables from the December 2005 analysis. Those tables form a base case against which additional changes can be compared, if price increases further.

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<sup>1</sup> Prepared by Paul Ballonoff, Chief of Party, CORE International USAID Project "Advisory Assistance to the Ministry of Energy of Georgia". Views expressed are only those of the author.

**Table 1: Current and Projected Gas Usage in Georgia  
Gas Flow Forecasts, per MCC April 1 2005 Projections  
On North South Pipeline  
Sources of Consumption - Cubic Meters**

Year	Electricity Generation	Industry	Households	Georgia Only	Transit to Armenia	Total
2005	528,144,000	430,000,000	500,000,000	1,458,144,000	1,700,000,000	4,616,288,000
2006	942,000,000	518,000,000	540,000,000	2,000,000,000	1,750,000,000	5,750,000,000
2007	1,042,000,000	1,200,000,000	600,000,000	2,842,000,000	1,800,000,000	7,484,000,000
2008	1,100,000,000	1,450,000,000	650,000,000	3,200,000,000	2,000,000,000	8,400,000,000
Forecasted Annual Changes in Consumption and Throughput Electricity						
Year	Generation	Industry	Households	Georgia Only	Transit to Armenia	Total
2005						
2006	413,856,000	88,000,000	40,000,000	541,856,000	50,000,000	1,133,712,000
2007	100,000,000	682,000,000	60,000,000	842,000,000	50,000,000	1,734,000,000
2008	58,000,000	250,000,000	50,000,000	358,000,000	200,000,000	916,000,000
<b>Total</b>						
<b>Change</b>	571,856,000	1,020,000,000	150,000,000	1,741,856,000	300,000,000	3,783,712,000
<b>Total Use</b>	1,100,000,000	1,450,000,000	650,000,000	3,200,000,000	2,000,000,000	8,400,000,000

  

**Table 2: Percentages of Georgian Current and Projected Gas Usage  
Gas Flow Forecasts, per MCC April 1 2005 Projections  
On North South Pipeline  
Sources of Consumption - Percentages**

Year	Electricity Generation	Industry	Households	Georgia Only	Transit to Armenia	Total
2005	36.22%	29.49%	34.29%	100.00%	116.59%	316.59%
2006	47.10%	25.90%	27.00%	100.00%	87.50%	287.50%
2007	36.66%	42.22%	21.11%	100.00%	63.34%	263.34%
2008	34.38%	45.31%	20.31%	100.00%	62.50%	262.50%
Forecasted Annual Changes in Consumption and Throughput Electricity						
Year	Generation	Industry	Households	Georgia Only	Transit to Armenia	Total
2005						
2006	76.38%	16.24%	7.38%	100.00%	9.23%	209.23%
2007	11.88%	81.00%	7.13%	100.00%	5.94%	205.94%
2008	16.20%	69.83%	13.97%	100.00%	55.87%	255.87%
<b>Total</b>						
<b>Change</b>	104.46%	167.07%	28.47%	300.00%	71.03%	671.03%
<b>Total Use</b>	140.68%	196.56%	62.76%	400.00%	187.62%	987.62%

The first page of Table 3 on the next page summarizes the impacts of changes in cost if the same volumes as forecasted, were indeed those transacted. The entries for the year 2005, offers a base of comparison before analyzing impacts of projected changes in volumes. Recall the structure of the table: Gas consumption was forecasted to increase in 2006. At the new price, the increased cost for the total forecasted consumption in 2006 would be \$90 million. Subtracting the \$65.6 million impact on the present level of consumption, then the impact of the price increase on the increased volumes forecasted for 2006 is \$24.4 million. Table 3 then continues below with variants for prices at \$50 increments up to \$310/1000m<sup>3</sup>. The index price for each table is given on the top-center of each page.

**Table 3: Comparative Impact of Projected Gas Cost Changes  
Based on Gas Flow Forecasts, per MCC April 1 2005 Projections  
On North South Pipeline**

<b>At Projected Price</b>				<b>New Price pe 1000 cu meters:</b>		
<b>Cost of Consumption</b>				<b>\$ 110.00</b>		
<b>Electricity</b>						
Year	Generation	Industry	Households	Georgia Only	Transit to Armenia	Total
2005	\$ 58,095,840	\$ 47,300,000	\$ 55,000,000	\$ 160,395,840	\$ 187,000,000	\$ 507,791,680
2006	\$ 103,620,000	\$ 56,980,000	\$ 59,400,000	\$ 220,000,000	\$ 192,500,000	\$ 632,500,000
2007	\$ 114,620,000	\$ 132,000,000	\$ 66,000,000	\$ 312,620,000	\$ 198,000,000	\$ 823,240,000
2008	\$ 121,000,000	\$ 159,500,000	\$ 71,500,000	\$ 352,000,000	\$ 220,000,000	\$ 924,000,000
<b>Forecasted Annual Changes in Cost of Consumption and Throughput</b>						
<b>Electricity</b>						
Year	Generation	Industry	Households	Georgia Only	Transit to Armenia	Total
2005						
2006	\$ 45,524,160	\$ 9,680,000	\$ 4,400,000	\$ 59,604,160	\$ 5,500,000	\$ 124,708,320
2007	\$ 11,000,000	\$ 75,020,000	\$ 6,600,000	\$ 92,620,000	\$ 5,500,000	\$ 190,740,000
2008	\$ 6,380,000	\$ 27,500,000	\$ 5,500,000	\$ 39,380,000	\$ 22,000,000	\$ 100,760,000
<b>At Previous Price</b>				<b>Old Price pe 1000 cu meters:</b>		
<b>Total Cost of Consumption</b>				<b>\$ 65.00</b>		
<b>Electricity</b>						
Year	Generation	Industry	Households	Georgia Only	Transit to Armenia	Total
2005	\$ 34,329,360	\$ 27,950,000	\$ 32,500,000	\$ 94,779,360	\$ 110,500,000	\$ 300,058,720
2006	\$ 61,230,000	\$ 33,670,000	\$ 35,100,000	\$ 130,000,000	\$ 113,750,000	\$ 373,750,000
2007	\$ 67,730,000	\$ 78,000,000	\$ 39,000,000	\$ 184,730,000	\$ 117,000,000	\$ 486,460,000
2008	\$ 71,500,000	\$ 94,250,000	\$ 42,250,000	\$ 208,000,000	\$ 130,000,000	\$ 546,000,000
<b>Impact of Annual Changes in Throughput on Cost of Consumption</b>						
<b>Electricity</b>						
Year	Generation	Industry	Households	Georgia Only	Transit to Armenia	Total
2005						
2006	\$ 26,900,640	\$ 5,720,000	\$ 2,600,000	\$ 35,220,640	\$ 3,250,000	\$ 73,691,280
2007	\$ 6,500,000	\$ 44,330,000	\$ 3,900,000	\$ 54,730,000	\$ 3,250,000	\$ 112,710,000
2008	\$ 3,770,000	\$ 16,250,000	\$ 3,250,000	\$ 23,270,000	\$ 13,000,000	\$ 59,540,000
<b>Increment in Cost of Consumption Due to Increased Volume and Increased Price</b>						
<b>New Vs Previous Price</b>						
<b>Increment in Price pe 1000 cu. m.:</b>				<b>\$ 45.00</b>		
<b>Electricity</b>						
Year	Generation	Industry	Households	Georgia Only	Transit to Armenia	Total
2005	\$ 23,766,480	\$ 19,350,000	\$ 22,500,000	\$ 65,616,480	\$ 76,500,000	\$ 207,732,960
2006	\$ 42,390,000	\$ 23,310,000	\$ 24,300,000	\$ 90,000,000	\$ 78,750,000	\$ 258,750,000
2007	\$ 46,890,000	\$ 54,000,000	\$ 27,000,000	\$ 127,890,000	\$ 81,000,000	\$ 336,780,000
2008	\$ 49,500,000	\$ 65,250,000	\$ 29,250,000	\$ 144,000,000	\$ 90,000,000	\$ 378,000,000
<b>Increment in Cost Due to Price Effects Only on Incremental Volume</b>						
<b>Electricity</b>						
Year	Generation	Industry	Households	Georgia Only	Transit to Armenia	Total
2005						
2006	\$ 18,623,520	\$ 3,960,000	\$ 1,800,000	\$ 24,383,520	\$ 2,250,000	\$ 51,017,040
2007	\$ 4,500,000	\$ 30,690,000	\$ 2,700,000	\$ 37,890,000	\$ 2,250,000	\$ 78,030,000
2008	\$ 2,610,000	\$ 11,250,000	\$ 2,250,000	\$ 16,110,000	\$ 9,000,000	\$ 41,220,000

**Table 3: Comparative Impact of Projected Gas Cost Changes  
Based on Gas Flow Forecasts, per MCC April 1 2005 Projections  
On North South Pipeline**

<b>At Projected Price</b>				<b>New Price pe 1000 cu meters:</b>		
<b>Cost of Consumption</b>				<b>\$ 160.00</b>		
<b>Year</b>	<b>Electricity Generation</b>	<b>Industry</b>	<b>Households</b>	<b>Georgia Only</b>	<b>Transit to Armenia</b>	<b>Total</b>
2005	\$ 84,503,040	\$ 68,800,000	\$ 80,000,000	\$ 233,303,040	\$ 272,000,000	\$ 738,606,080
2006	\$ 150,720,000	\$ 82,880,000	\$ 86,400,000	\$ 320,000,000	\$ 280,000,000	\$ 920,000,000
2007	\$ 166,720,000	\$ 192,000,000	\$ 96,000,000	\$ 454,720,000	\$ 288,000,000	\$ 1,197,440,000
2008	\$ 176,000,000	\$ 232,000,000	\$ 104,000,000	\$ 512,000,000	\$ 320,000,000	\$ 1,344,000,000
<b>Forecasted Annual Changes in Cost of Consumption and Throughput</b>						
<b>Year</b>	<b>Electricity Generation</b>	<b>Industry</b>	<b>Households</b>	<b>Georgia Only</b>	<b>Transit to Armenia</b>	<b>Total</b>
2005						
2006	\$ 66,216,960	\$ 14,080,000	\$ 6,400,000	\$ 86,696,960	\$ 8,000,000	\$ 181,393,920
2007	\$ 16,000,000	\$ 109,120,000	\$ 9,600,000	\$ 134,720,000	\$ 8,000,000	\$ 277,440,000
2008	\$ 9,280,000	\$ 40,000,000	\$ 8,000,000	\$ 57,280,000	\$ 32,000,000	\$ 146,560,000
<b>At Previous Price</b>				<b>Old Price pe 1000 cu meters:</b>		
<b>Total Cost of Consumption</b>				<b>\$ 65.00</b>		
<b>Year</b>	<b>Electricity Generation</b>	<b>Industry</b>	<b>Households</b>	<b>Georgia Only</b>	<b>Transit to Armenia</b>	<b>Total</b>
2005	\$ 34,329,360	\$ 27,950,000	\$ 32,500,000	\$ 94,779,360	\$ 110,500,000	\$ 300,058,720
2006	\$ 61,230,000	\$ 33,670,000	\$ 35,100,000	\$ 130,000,000	\$ 113,750,000	\$ 373,750,000
2007	\$ 67,730,000	\$ 78,000,000	\$ 39,000,000	\$ 184,730,000	\$ 117,000,000	\$ 486,460,000
2008	\$ 71,500,000	\$ 94,250,000	\$ 42,250,000	\$ 208,000,000	\$ 130,000,000	\$ 546,000,000
<b>Impact of Annual Changes in Throughput on Cost of Consumption</b>						
<b>Year</b>	<b>Electricity Generation</b>	<b>Industry</b>	<b>Households</b>	<b>Georgia Only</b>	<b>Transit to Armenia</b>	<b>Total</b>
2005						
2006	\$ 26,900,640	\$ 5,720,000	\$ 2,600,000	\$ 35,220,640	\$ 3,250,000	\$ 73,691,280
2007	\$ 6,500,000	\$ 44,330,000	\$ 3,900,000	\$ 54,730,000	\$ 3,250,000	\$ 112,710,000
2008	\$ 3,770,000	\$ 16,250,000	\$ 3,250,000	\$ 23,270,000	\$ 13,000,000	\$ 59,540,000
<b>Increment in Cost of Consumption Due to Increased Volume and Increased Price</b>						
<b>New Vs Previous Price</b>						
<b>Increment in Price pe 1000 cu. m.:</b>				<b>\$ 95.00</b>		
<b>Year</b>	<b>Electricity Generation</b>	<b>Industry</b>	<b>Households</b>	<b>Georgia Only</b>	<b>Transit to Armenia</b>	<b>Total</b>
2005	\$ 50,173,680	\$ 40,850,000	\$ 47,500,000	\$ 138,523,680	\$ 161,500,000	\$ 438,547,360
2006	\$ 89,490,000	\$ 49,210,000	\$ 51,300,000	\$ 190,000,000	\$ 166,250,000	\$ 546,250,000
2007	\$ 98,990,000	\$ 114,000,000	\$ 57,000,000	\$ 269,990,000	\$ 171,000,000	\$ 710,980,000
2008	\$ 104,500,000	\$ 137,750,000	\$ 61,750,000	\$ 304,000,000	\$ 190,000,000	\$ 798,000,000
<b>Increment in Cost Due to Price Effects Only on Incremental Volume</b>						
<b>Year</b>	<b>Electricity Generation</b>	<b>Industry</b>	<b>Households</b>	<b>Georgia Only</b>	<b>Transit to Armenia</b>	<b>Total</b>
2005						
2006	\$ 39,316,320	\$ 8,360,000	\$ 3,800,000	\$ 51,476,320	\$ 4,750,000	\$ 107,702,640
2007	\$ 9,500,000	\$ 64,790,000	\$ 5,700,000	\$ 79,990,000	\$ 4,750,000	\$ 164,730,000
2008	\$ 5,510,000	\$ 23,750,000	\$ 4,750,000	\$ 34,010,000	\$ 19,000,000	\$ 87,020,000

**Table 3: Comparative Impact of Projected Gas Cost Changes  
Based on Gas Flow Forecasts, per MCC April 1 2005 Projections  
On North South Pipeline**

<b>At Projected Price</b>				<b>New Price pe 1000 cu meters:</b>		
<b>Cost of Consumption</b>				<b>\$ 210.00</b>		
<b>Year</b>	<b>Generation</b>	<b>Industry</b>	<b>Households</b>	<b>Georgia Only</b>	<b>Transit to Armenia</b>	<b>Total</b>
2005	\$ 110,910,240	\$ 90,300,000	\$ 105,000,000	\$ 306,210,240	\$ 357,000,000	\$ 969,420,480
2006	\$ 197,820,000	\$ 108,780,000	\$ 113,400,000	\$ 420,000,000	\$ 367,500,000	\$ 1,207,500,000
2007	\$ 218,820,000	\$ 252,000,000	\$ 126,000,000	\$ 596,820,000	\$ 378,000,000	\$ 1,571,640,000
2008	\$ 231,000,000	\$ 304,500,000	\$ 136,500,000	\$ 672,000,000	\$ 420,000,000	\$ 1,764,000,000
<b>Forecasted Annual Changes in Cost of Consumption and Throughput</b>						
<b>Year</b>	<b>Generation</b>	<b>Industry</b>	<b>Households</b>	<b>Georgia Only</b>	<b>Transit to Armenia</b>	<b>Total</b>
2005						
2006	\$ 86,909,760	\$ 18,480,000	\$ 8,400,000	\$ 113,789,760	\$ 10,500,000	\$ 238,079,520
2007	\$ 21,000,000	\$ 143,220,000	\$ 12,600,000	\$ 176,820,000	\$ 10,500,000	\$ 364,140,000
2008	\$ 12,180,000	\$ 52,500,000	\$ 10,500,000	\$ 75,180,000	\$ 42,000,000	\$ 192,360,000
<b>At Previous Price</b>				<b>Old Price pe 1000 cu meters:</b>		
<b>Total Cost of Consumption</b>				<b>\$ 65.00</b>		
<b>Year</b>	<b>Generation</b>	<b>Industry</b>	<b>Households</b>	<b>Georgia Only</b>	<b>Transit to Armenia</b>	<b>Total</b>
2005	\$ 34,329,360	\$ 27,950,000	\$ 32,500,000	\$ 94,779,360	\$ 110,500,000	\$ 300,058,720
2006	\$ 61,230,000	\$ 33,670,000	\$ 35,100,000	\$ 130,000,000	\$ 113,750,000	\$ 373,750,000
2007	\$ 67,730,000	\$ 78,000,000	\$ 39,000,000	\$ 184,730,000	\$ 117,000,000	\$ 486,460,000
2008	\$ 71,500,000	\$ 94,250,000	\$ 42,250,000	\$ 208,000,000	\$ 130,000,000	\$ 546,000,000
<b>Impact of Annual Changes in Throughput on Cost of Consumption</b>						
<b>Year</b>	<b>Generation</b>	<b>Industry</b>	<b>Households</b>	<b>Georgia Only</b>	<b>Transit to Armenia</b>	<b>Total</b>
2005						
2006	\$ 26,900,640	\$ 5,720,000	\$ 2,600,000	\$ 35,220,640	\$ 3,250,000	\$ 73,691,280
2007	\$ 6,500,000	\$ 44,330,000	\$ 3,900,000	\$ 54,730,000	\$ 3,250,000	\$ 112,710,000
2008	\$ 3,770,000	\$ 16,250,000	\$ 3,250,000	\$ 23,270,000	\$ 13,000,000	\$ 59,540,000
<b>Increment in Cost of Consumption Due to Increased Volume and Increased Price</b>						
<b>New Vs Previous Price</b>						
<b>Increment in Price pe 1000 cu. m.:</b>				<b>\$ 145.00</b>		
<b>Year</b>	<b>Generation</b>	<b>Industry</b>	<b>Households</b>	<b>Georgia Only</b>	<b>Transit to Armenia</b>	<b>Total</b>
2005	\$ 76,580,880	\$ 62,350,000	\$ 72,500,000	\$ 211,430,880	\$ 246,500,000	\$ 669,361,760
2006	\$ 136,590,000	\$ 75,110,000	\$ 78,300,000	\$ 290,000,000	\$ 253,750,000	\$ 833,750,000
2007	\$ 151,090,000	\$ 174,000,000	\$ 87,000,000	\$ 412,090,000	\$ 261,000,000	\$ 1,085,180,000
2008	\$ 159,500,000	\$ 210,250,000	\$ 94,250,000	\$ 464,000,000	\$ 290,000,000	\$ 1,218,000,000
<b>Increment in Cost Due to Price Effects Only on Incremental Volume</b>						
<b>Year</b>	<b>Generation</b>	<b>Industry</b>	<b>Households</b>	<b>Georgia Only</b>	<b>Transit to Armenia</b>	<b>Total</b>
2005						
2006	\$ 60,009,120	\$ 12,760,000	\$ 5,800,000	\$ 78,569,120	\$ 7,250,000	\$ 164,388,240
2007	\$ 14,500,000	\$ 98,890,000	\$ 8,700,000	\$ 122,090,000	\$ 7,250,000	\$ 251,430,000
2008	\$ 8,410,000	\$ 36,250,000	\$ 7,250,000	\$ 51,910,000	\$ 29,000,000	\$ 132,820,000

**Table 3: Comparative Impact of Projected Gas Cost Changes  
Based on Gas Flow Forecasts, per MCC April 1 2005 Projections  
On North South Pipeline**

<b>At Projected Price</b>				<b>New Price pe 1000 cu meters:</b>		
<b>Cost of Consumption</b>				<b>\$ 260.00</b>		
<b>Electricity</b>						
Year	Generation	Industry	Households	Georgia Only	Transit to Armenia	Total
2005	\$ 137,317,440	\$ 111,800,000	\$ 130,000,000	\$ 379,117,440	\$ 442,000,000	\$1,200,234,880
2006	\$ 244,920,000	\$ 134,680,000	\$ 140,400,000	\$ 520,000,000	\$ 455,000,000	\$1,495,000,000
2007	\$ 270,920,000	\$ 312,000,000	\$ 156,000,000	\$ 738,920,000	\$ 468,000,000	\$1,945,840,000
2008	\$ 286,000,000	\$ 377,000,000	\$ 169,000,000	\$ 832,000,000	\$ 520,000,000	\$2,184,000,000
<b>Forecasted Annual Changes in Cost of Consumption and Throughput</b>						
<b>Electricity</b>						
Year	Generation	Industry	Households	Georgia Only	Transit to Armenia	Total
2005						
2006	\$ 107,602,560	\$ 22,880,000	\$ 10,400,000	\$ 140,882,560	\$ 13,000,000	\$ 294,765,120
2007	\$ 26,000,000	\$ 177,320,000	\$ 15,600,000	\$ 218,920,000	\$ 13,000,000	\$ 450,840,000
2008	\$ 15,080,000	\$ 65,000,000	\$ 13,000,000	\$ 93,080,000	\$ 52,000,000	\$ 238,160,000
<b>At Previous Price</b>				<b>Old Price pe 1000 cu meters:</b>		
<b>Total Cost of Consumption</b>				<b>\$ 65.00</b>		
<b>Electricity</b>						
Year	Generation	Industry	Households	Georgia Only	Transit to Armenia	Total
2005	\$ 34,329,360	\$ 27,950,000	\$ 32,500,000	\$ 94,779,360	\$ 110,500,000	\$ 300,058,720
2006	\$ 61,230,000	\$ 33,670,000	\$ 35,100,000	\$ 130,000,000	\$ 113,750,000	\$ 373,750,000
2007	\$ 67,730,000	\$ 78,000,000	\$ 39,000,000	\$ 184,730,000	\$ 117,000,000	\$ 486,460,000
2008	\$ 71,500,000	\$ 94,250,000	\$ 42,250,000	\$ 208,000,000	\$ 130,000,000	\$ 546,000,000
<b>Impact of Annual Changes in Throughput on Cost of Consumption</b>						
<b>Electricity</b>						
Year	Generation	Industry	Households	Georgia Only	Transit to Armenia	Total
2005						
2006	\$ 26,900,640	\$ 5,720,000	\$ 2,600,000	\$ 35,220,640	\$ 3,250,000	\$ 73,691,280
2007	\$ 6,500,000	\$ 44,330,000	\$ 3,900,000	\$ 54,730,000	\$ 3,250,000	\$ 112,710,000
2008	\$ 3,770,000	\$ 16,250,000	\$ 3,250,000	\$ 23,270,000	\$ 13,000,000	\$ 59,540,000
<b>Increment in Cost of Consumption Due to Increased Volume and Increased Price</b>						
<b>New Vs Previous Price</b>						
<b>Increment in Price pe 1000 cu. m.:</b>				<b>\$ 195.00</b>		
<b>Electricity</b>						
Year	Generation	Industry	Households	Georgia Only	Transit to Armenia	Total
2005	\$ 102,988,080	\$ 83,850,000	\$ 97,500,000	\$ 284,338,080	\$ 331,500,000	\$ 900,176,160
2006	\$ 183,690,000	\$ 101,010,000	\$ 105,300,000	\$ 390,000,000	\$ 341,250,000	\$1,121,250,000
2007	\$ 203,190,000	\$ 234,000,000	\$ 117,000,000	\$ 554,190,000	\$ 351,000,000	\$1,459,380,000
2008	\$ 214,500,000	\$ 282,750,000	\$ 126,750,000	\$ 624,000,000	\$ 390,000,000	\$1,638,000,000
<b>Increment in Cost Due to Price Effects Only on Incremental Volume</b>						
<b>Electricity</b>						
Year	Generation	Industry	Households	Georgia Only	Transit to Armenia	Total
2005						
2006	\$ 80,701,920	\$ 17,160,000	\$ 7,800,000	\$ 105,661,920	\$ 9,750,000	\$ 221,073,840
2007	\$ 19,500,000	\$ 132,990,000	\$ 11,700,000	\$ 164,190,000	\$ 9,750,000	\$ 338,130,000
2008	\$ 11,310,000	\$ 48,750,000	\$ 9,750,000	\$ 69,810,000	\$ 39,000,000	\$ 178,620,000

**Table 3: Comparative Impact of Projected Gas Cost Changes  
Based on Gas Flow Forecasts, per MCC April 1 2005 Projections  
On North South Pipeline**

<b>At Projected Price</b>		<b>New Price pe 1000 cu meters:</b>					
<b>Cost of Consumption</b>		<b>Electricity</b>			<b>\$ 310.00</b>		
<b>Year</b>	<b>Generation</b>	<b>Industry</b>	<b>Households</b>	<b>Georgia Only</b>	<b>Transit to Armenia</b>	<b>Total</b>	
2005	\$ 163,724,640	\$ 133,300,000	\$ 155,000,000	\$ 452,024,640	\$ 527,000,000	\$ 1,431,049,280	
2006	\$ 292,020,000	\$ 160,580,000	\$ 167,400,000	\$ 620,000,000	\$ 542,500,000	\$ 1,782,500,000	
2007	\$ 323,020,000	\$ 372,000,000	\$ 186,000,000	\$ 881,020,000	\$ 558,000,000	\$ 2,320,040,000	
2008	\$ 341,000,000	\$ 449,500,000	\$ 201,500,000	\$ 992,000,000	\$ 620,000,000	\$ 2,604,000,000	
<b>Forecasted Annual Changes in Cost of Consumption and Throughput</b>							
<b>Electricity</b>							
<b>Year</b>	<b>Generation</b>	<b>Industry</b>	<b>Households</b>	<b>Georgia Only</b>	<b>Transit to Armenia</b>	<b>Total</b>	
2005							
2006	\$ 128,295,360	\$ 27,280,000	\$ 12,400,000	\$ 167,975,360	\$ 15,500,000	\$ 351,450,720	
2007	\$ 31,000,000	\$ 211,420,000	\$ 18,600,000	\$ 261,020,000	\$ 15,500,000	\$ 537,540,000	
2008	\$ 17,980,000	\$ 77,500,000	\$ 15,500,000	\$ 110,980,000	\$ 62,000,000	\$ 283,960,000	
<b>At Previous Price</b>		<b>Old Price pe 1000 cu meters:</b>					
<b>Total Cost of Consumption</b>		<b>Electricity</b>			<b>\$ 65.00</b>		
<b>Year</b>	<b>Generation</b>	<b>Industry</b>	<b>Households</b>	<b>Georgia Only</b>	<b>Transit to Armenia</b>	<b>Total</b>	
2005	\$ 34,329,360	\$ 27,950,000	\$ 32,500,000	\$ 94,779,360	\$ 110,500,000	\$ 300,058,720	
2006	\$ 61,230,000	\$ 33,670,000	\$ 35,100,000	\$ 130,000,000	\$ 113,750,000	\$ 373,750,000	
2007	\$ 67,730,000	\$ 78,000,000	\$ 39,000,000	\$ 184,730,000	\$ 117,000,000	\$ 486,460,000	
2008	\$ 71,500,000	\$ 94,250,000	\$ 42,250,000	\$ 208,000,000	\$ 130,000,000	\$ 546,000,000	
<b>Impact of Annual Changes in Throughput on Cost of Consumption</b>							
<b>Electricity</b>							
<b>Year</b>	<b>Generation</b>	<b>Industry</b>	<b>Households</b>	<b>Georgia Only</b>	<b>Transit to Armenia</b>	<b>Total</b>	
2005							
2006	\$ 26,900,640	\$ 5,720,000	\$ 2,600,000	\$ 35,220,640	\$ 3,250,000	\$ 73,691,280	
2007	\$ 6,500,000	\$ 44,330,000	\$ 3,900,000	\$ 54,730,000	\$ 3,250,000	\$ 112,710,000	
2008	\$ 3,770,000	\$ 16,250,000	\$ 3,250,000	\$ 23,270,000	\$ 13,000,000	\$ 59,540,000	
<b>Increment in Cost of Consumption Due to Increased Volume and Increased Price</b>							
<b>New Vs Previous Price</b>							
<b>Increment in Price pe 1000 cu. m.:</b>		<b>Electricity</b>			<b>\$ 245.00</b>		
<b>Year</b>	<b>Generation</b>	<b>Industry</b>	<b>Households</b>	<b>Georgia Only</b>	<b>Transit to Armenia</b>	<b>Total</b>	
2005	\$ 129,395,280	\$ 105,350,000	\$ 122,500,000	\$ 357,245,280	\$ 416,500,000	\$ 1,130,990,560	
2006	\$ 230,790,000	\$ 126,910,000	\$ 132,300,000	\$ 490,000,000	\$ 428,750,000	\$ 1,408,750,000	
2007	\$ 255,290,000	\$ 294,000,000	\$ 147,000,000	\$ 696,290,000	\$ 441,000,000	\$ 1,833,580,000	
2008	\$ 269,500,000	\$ 355,250,000	\$ 159,250,000	\$ 784,000,000	\$ 490,000,000	\$ 2,058,000,000	
<b>Increment in Cost Due to Price Effects Only on Incremental Volume</b>							
<b>Electricity</b>							
<b>Year</b>	<b>Generation</b>	<b>Industry</b>	<b>Households</b>	<b>Georgia Only</b>	<b>Transit to Armenia</b>	<b>Total</b>	
2005							
2006	\$ 101,394,720	\$ 21,560,000	\$ 9,800,000	\$ 132,754,720	\$ 12,250,000	\$ 277,759,440	
2007	\$ 24,500,000	\$ 167,090,000	\$ 14,700,000	\$ 206,290,000	\$ 12,250,000	\$ 424,830,000	
2008	\$ 14,210,000	\$ 61,250,000	\$ 12,250,000	\$ 87,710,000	\$ 49,000,000	\$ 224,420,000	

**Part I.B. Comparative Impacts**

The relative importance of the projected increase in gas cost might be measured by several indices, is summarized in Table 4 below. As for the previous Table 3, we reproduce here as the first page of Table 4, the same information as given on Table 4 for a price increase to \$110/1000m<sup>3</sup>. In the second block, the increase is computed as a percentage of several national income account. In the third block, as a percentage of various sector economic measures. The additional pages of Table 4 then reproduce this analysis as prices in \$50 increments up to \$310/1000m<sup>3</sup>. The index price of each table is shown in the upper right had corner.

**Table 4: Comparisons at Prices up to \$310/1000m<sup>3</sup>**

<b>Comparisons Of Relative Impacts</b>		
	<b>As Gas Price of:</b>	<b>\$ 110.00</b>
	<b>Increment In Gas Cost</b>	
	<b>Lari, Million</b>	<b>As % of:</b>
<b>Total Impact On Consumption Levels as of 2005</b>	118.11	
<b>GDP, Nominal Total, Forecasted 2006</b>	12,878.50	0.92%
<b>GoG Budget Expenses, Forecasted 2006</b>	3,020.30	3.91%
<b>Compared to Domestic Accounts, Forecasted 2006</b>		
Consumer expenses	10,542.64	1.12%
Government	1,253.40	9.42%
Private	9,289.24	1.27%
Investments	4,017.53	2.94%
Government	610.17	19.36%
Private	3,407.37	3.47%
Export	4,676.72	2.53%
Import	6,358.34	1.86%
<b>Impact By Sector, over Forecasted 2005</b>		
Increase For Households, as % of Consumer Expenses:	40.50	0.38%
Increase for Industry, as % of Private Investment	34.83	1.02%
Increase For Electricity Production Cost	42.78	19.87%
Compared to WEM Cost, 2004 of	215.35	

### Comparisons Of Relative Impacts

As Gas Price of: **\$ 160.00**

Increment In Gas Cost

Lari, Million

As % of:

**Total Impact On Consumption Levels as of 2005**

249.34

<b>GDP, Nominal Total, Forecasted 2006</b>	12,878.50	1.94%
<b>GoG Budget Expenses, Forecasted 2006</b>	3,020.30	8.26%

#### Compared to Domestic Accounts, Forecasted 2006

Consumer expenses	10,542.64	2.37%
Government	1,253.40	19.89%
Private	9,289.24	2.68%
Investments	4,017.53	6.21%
Government	610.17	40.86%
Private	3,407.37	7.32%
Export	4,676.72	5.33%
Import	6,358.34	3.92%

#### Impact By Sector, over Forecasted 2005

Increase For Households, as % of Consumer Expenses:	85.50	0.81%
Increase for Industry, as % of Private Investment	73.53	2.16%
Increase For Electricity Production Cost	90.31	41.94%
Compared to WEM Cost, 2004 of	215.35	

<b>Comparisons Of Relative Impacts</b>		
	<b>As Gas Price of: <u>\$ 210.00</u></b>	
	<b>Increment In Gas Cost</b>	
<b>Total Impact On Consumption Levels as of 2005</b>	380.58	
<b>GDP, Nominal Total, Forecasted 2006</b>	12,878.50	2.96%
<b>GoG Budget Expenses, Forecasted 2006</b>	3,020.30	12.60%
Compared to Domestic Accounts, Forecasted 2006		
<b>Consumer expenses</b>	10,542.64	0.036099
Government	1,253.40	30.36%
Private	9,289.24	4.10%
Investments	4,017.53	9.47%
Government	610.17	62.37%
Private	3,407.37	11.17%
Export	4,676.72	8.14%
Import	6,358.34	5.99%
Impact By Sector, over Forecasted 2005		
<b>Increase For Households, as % of Consumer Expense:</b>	130.50	1.24%
Increase for Industry, as % of Private Investment	112.23	3.29%
Increase For Electricity Production Cost	137.85	64.01%
Compared to WEM Cost, 2004 of	215.35	

### Comparisons Of Relative Impacts

As Gas Price of: **\$ 260.00**

Increment In Gas Cost

Lari, Million

As % of:

**Total Impact On Consumption Levels as of 2005**

511.81

**GDP, Nominal Total, Forecasted 2006**

12,878.50

3.97%

**GoG Budget Expenses, Forecasted 2006**

3,020.30

16.95%

#### Compared to Domestic Accounts, Forecasted 2006

Consumer expenses	10,542.64	4.85%
Government	1,253.40	40.83%
Private	9,289.24	5.51%
Investments	4,017.53	12.74%
Government	610.17	83.88%
Private	3,407.37	15.02%
Export	4,676.72	10.94%
Import	6,358.34	8.05%

#### Impact By Sector, over Forecasted 2005

Increase For Households, as % of Consumer Expenses:	175.50	1.66%
Increase for Industry, as % of Private Investment	150.93	4.43%
Increase For Electricity Production Cost	185.38	86.08%
Compared to WEM Cost, 2004 of	215.35	

### Comparisons Of Relative Impacts

As Gas Price of: **\$ 310.00**

Increment In Gas Cost

Lari, Million

As % of:

**Total Impact On Consumption Levels as of 2005**

643.04

<b>GDP, Nominal Total, Forecasted 2006</b>	12,878.50	4.99%
<b>GoG Budget Expenses, Forecasted 2006</b>	3,020.30	21.29%

#### Compared to Domestic Accounts, Forecasted 2006

Consumer expenses	10,542.64	6.10%
Government	1,253.40	51.30%
Private	9,289.24	6.92%
Investments	4,017.53	16.01%
Government	610.17	105.39%
Private	3,407.37	18.87%
Export	4,676.72	13.75%
Import	6,358.34	10.11%

#### Impact By Sector, over Forecasted 2005

Increase For Households, as % of Consumer Expenses:	220.50	2.09%
Increase for Industry, as % of Private Investment	189.63	5.57%
Increase For Electricity Production Cost	232.91	108.16%
Compared to WEM Cost, 2004 of	215.35	