

Economic consequences of the 2008 power cuts in the Kyrgyz Republic

Bishkek 2009



By Bakhtiyar Alymov, Muslim Iminov, Akima Orozalieva, and Nurgul Toktogulova.

This study was funded by the OSCE's Bishkek office.

The views, findings, interpretations and conclusions expressed here are those of the authors and do not necessarily reflect the views of the OSCE or of the OSCE's Bishkek office.

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Introduction

The commissioning of this study was prompted by the Republic's energy crisis, itself the consequence of two principal causes. These were the abnormally large volumes of water discharged from the Toktogul reservoir during a period of low inflow; and the unusually cold winter of 2007/8, which saw daily electricity consumption rise to more than 60 million kWh. The volume of water remaining in the reservoir accordingly declined to minimal permissible levels. Since planners knew that at least 6.5 billion cubic meters would be needed for the following winter, stringent measures were taken to reduce electricity consumption. These measures included power cuts, prohibitions on the use of electricity for heating, other limits on electricity consumption, and limits too on new connections to the national electricity grid.

All these measures gave rise to social tension and, by hampering production in the majority of enterprises, had an adverse effect on the Republic's economy in general.

The purpose of this study is to assess the effects of the energy crisis on the Republic's economic development. This in turn will allow the Ministry of Economic Development and Trade to implement its policies more effectively by giving special attention to certain priority areas.

The study will consider the following issues:

- enterprises' production and financial losses;
- possible effects on the attraction of foreign investment; and
- household-level losses.

A principal source of data was the National Statistics Committee of the Kyrgyz Republic. Other agencies and individuals also provided material of a variety of types. In addition, interviews were conducted with leaders of sectoral and regional business associations.

1. Macroeconomic review

According to the National Statistics Committee of the Kyrgyz Republic (henceforth NSC), national GDP¹ was 185.1 billion Kyrgyz Som (henceforth KGS) in 2008, an increase of 7.6% over the previous year's figure. Excluding the activities of the Kumtor Operating Company reduces this to 5.4%². The corresponding indices for 2007 are 8.5% and 9.0% respectively (see Annex 1).

Year-on-year growth in 2008 was slower than in 2007 in a number of sectors of the economy. Industrial output suffered: again excluding the activities of Kumtor, the 2008 absolute figure was 2.1% below that for 2007, despite the fact that in 2007 it had grown by 10.3%. In the production and distribution of electricity, gas and water, 2008 also saw significant contraction, of 7.5%, to be compared with positive growth in 2007 of 7.8%. Worst hit was construction, which transformed positive growth of 32.3% in 2007 into negative growth of 10.8% in 2008.

The Ministry of Economic Development and Trade estimates that the energy crisis cost the garment industry very nearly 500 million KGS (US\$12.5 million) in lost production. Tokmok glass factory lost production worth 101.2 million KGS (approximately US\$2.5 million)³.

A September 2008 article⁴ by the business news agency Business AKIpress has calculated that in 2007 every kilowatt-hour consumed by industry contributed 27.73 KGS to GDP and 1.79 KGS to budgetary revenue. Its calculations were based on 2007 figures for GDP (139.8 billion KGS), budgetary revenue (26.6 billion KGS) total electricity generated (14.8 billion kWh), electricity exports (2.2 billion kWh) and total electricity consumption (12.2 billion kWh), and assumed that industrial consumption of electricity accounts for between 40% and 50% of total national electricity consumption. On the basis of these figures, the article claimed that every reduction in industrial electricity consumption of 1% would be associated with falls in GDP and budgetary revenue of 2.5%. It pointed out that although the price at which 520 million kWh had been exported from Kyrgyzstan, namely US\$ 0.045 (1.57 KGS) per kWh, seemed a good one because significantly more than the price that internal consumers would have paid, for the economy as a whole the export had brought a loss: had that electricity not been exported, GDP and budgetary revenue would have been significantly higher, by 14.4 billion KGS and 931 million KGS respectively. The sale in fact generated 787.5 million KGS.

It is therefore clear that one of the factors leading to the general reduction in economic growth was the energy crisis. However, since it coincided with unrelated difficulties in the financial sector, it is difficult to quantify the economic damage that should be attributed solely to problems in the energy sector.

The international financial crisis has not yet affected Kyrgyzstan as seriously as many other countries, but there are indications of some level of negative impact in reductions in deposits attracted, falling remittances from overseas, and possible capital outflows.

¹ calculated by the production method

² *Socioeconomic Status of the Kyrgyz Republic* published monthly, NSC, January - December 2008.

³ *CA-NEWS (KG)*, December 1st 2008.

⁴ *Industrialists say that power cuts affect production volumes and GDP*, Nurlan Addyshev, Business AKIpress, September 3rd 2008.

Despite positive growth in 2007, in 2008 investment in fixed capital was 5.4% less than in 2007.

According to a December 2008 Central Asian News Service bulletin⁵, outflows from Kazakhstan in the first half of 2008 were estimated to have reached US\$ 52 billion. Over the same period, outflows from Georgia were estimated at US\$ 30 million and from Kyrgyzstan at more than US\$ 20 million.

According to the National Bank of the Kyrgyz Republic (henceforth NBKR) net inflows of direct foreign investment (henceforth DFI) in the first half of 2008 showed an increase over the same period the previous year of 24.3%, to US\$ 139.5 million, associated with increased credit from foreign direct investors. Net outflows showed growth of 70% to US\$ 163.4 million over the same period the previous year.

In the first half of 2008 net outflows of portfolio investment, the difference between Kyrgyz residents' investments in overseas stock and overseas residents' investments in Kyrgyz stock, amounted to US\$ 20.3 million, a growth of approximately 50% over the same period the previous year⁶.

The period January to September 2008 saw DFI growth of 50% over the corresponding period a year earlier. The DFI balance - inflows minus outflows - came to US\$ 193.4 million⁷.

The sectors that attracted the most DFI in the first nine months of 2008 were:

- finance, which accounted for 49.7% of total DFI;
- processing, which took 21.6%; and
- real estate and allied services, which accounted for 11.2%.

The following sectors experienced significant net capital outflows in the first half of 2008:

- agriculture, which lost US\$ 1.6 million⁸;
- mining, which lost US\$ 2.0 million; and
- hotels and restaurants (US\$ 1.3 million).

In a December 2008 interview⁹, Kanybek Narbaev, Director of the State Agency for Architecture and Construction, attributed the fall in internal investment in construction over the first nine months of 2008 - down by 14.7% on the corresponding period in 2007 - to panic among construction companies and the effects of the international financial crisis on Kazakhstan and Russia - with whom Kyrgyz construction companies had many close links. He expected the market to normalize by the end of the year. Investment in construction was, he said, unaffected, reaching 21.21 billion KGS during the first nine months of 2008 (including the Djal-Artis project), an increase of 1.9% over the same period of 2007. Foreign investment reached 6.452 billion KGS, representing growth of 49% over the same period in 2007.

⁵ *CA News (KZ)* December 2nd 2008, quoting *Liter*, a Kazakh daily newspaper (see also www.liter.kz).

⁶ *Balance of payments of the Kyrgyz Republic for the first half of the year 2008*, NBKR October 2008.

⁷ *Socioeconomic Status of the Kyrgyz Republic*, published monthly, NSC, January - December 2008.

⁸ *Balance of payments of the Kyrgyz Republic for the first half of the year 2008*, NBKR October 2008.

⁹ *Domestic investment in construction has fallen*, Business AKIpress, December 5th 2008.

The general picture is that FDI continues to grow satisfactorily. This may in part be due to inertia, foreigners continuing to invest in accordance with obligations undertaken before the international financial crisis could influence their decision-making.

However, outflows are growing, and this is the result of the financial crisis and in particular a shortage of funds.

Although the energy crisis may have influenced investments in the Kyrgyz economy, power shortages did not have a serious effect on those sectors such as financial services, mining or agro-processing that has tended to be of most interest to investors.

It seems therefore that the principal recent influence on FDI has been the international financial crisis, and not the Kyrgyz Republic's energy crisis.

Another important indicator of the Republic's economic status is unemployment. The national figure fell, from 11.7% to 11.2%, over the first ten months of 2008. Unemployment exceeds the national average in Osh city (12.4%) and Batken (17.8%), Naryn (16.5%) and Chui regions (14.6%).

The above reduction in unemployment represents a slight slowing-down.

Employment in agriculture, which accounts for more than a third of all employment in the Republic, was harder hit by the reduced availability and higher cost of credit than by the energy crisis. By contrast the majority of other employment, in sectors such as industry, hotels, and vehicle and domestic appliance trade and maintenance, would have suffered more from the shortage of electricity.

In general then, declines in the main macroeconomic indicators in 2008 were conditioned by two factors operating simultaneously: the energy crisis and the financial crisis. It is difficult to disentangle the effects of one from those of the other.

2. Small and Medium Enterprises (SMEs)

As of October 1st 2008 10,700 SMEs and 201,900 one-man businesses were registered in Kyrgyzstan, in line with growth maintained since 2005 (see Annex 3). According to the NSC, SMEs and one-man businesses¹⁰ account for less than 15% of all employment within the Republic. This low figure may be explained in terms of hidden employment, a common phenomenon among SMEs.

SME growth in the first nine months of 2008 averaged 5.7%, an improvement over 2007's 5.3% growth. Employment in SMEs grew by 4% in the first nine months of 2008.

Farms continue to be the commonest form of SME. As of the end of 2008, 64% per cent of all SMEs - 256,000 of them - were farms. One-man businesses and small enterprises, concentrated mainly in Bishkek, were the next most common type of SME, 115,600 such businesses accounting for 29% of the total.

Between 2001 and 2008 there was a fall in the proportion of SMEs engaged in industry, from 21.1% to 19%. Other sectors in which SME numbers have declined include vehicle and domestic appliance trade and maintenance, agriculture, and hotels and restaurants. The reduction in SME activity in the hotel business may be connected with the tendency for many such businesses to operate unofficially; and in fact many ordinary citizens let out accommodation without informing the authorities.

Despite the importance of agriculture in the SME sector as a whole, the vast majority of agricultural SMEs are one-man businesses, only 2.6% of them achieving medium- or even small-enterprise status. This is an indication of Kyrgyzstan's agro-processing potential.

The geographical distribution of SMEs is extremely uneven. In Bishkek, the number of SMEs per 1,000 people exceeds many times the national average. The ratio of operational to registered SMEs is also highest in Bishkek. Chui region achieves the national average; but Osh, Talas, Issyk-Kul, Batken and Jalal-Abad regions all perform at below-average levels. SME activity in Issyk-Kul, Batken and Jalal-Abad regions is distinctly weak.

Bishkek accounts for 68% of SMEs, Chui region for 10.6%, Osh city 6.0%, Osh region 3.5%, Jalal-Abad region 3.9%, Issyk-Kul region 3.3%, Naryn region 2.0%, Batken region 1.5% and Talas region 1.1% (see Annex 4).

More than half of all SME employment is in Bishkek and Chui region. A little over 1.1% is located in Talas region.

Total employment in SMEs has fallen recently: the 2007 figure was 90,837, which had fallen by 3% to 88,228 by October 1st 2008. This contraction may be associated with difficulties experienced by SMEs in gaining access to adequate electricity supplies, which would certainly have had an impact in trade, services, restaurants, construction and garment production. But these sectors are all to some extent seasonal, maximum employment typically occurring in spring and summer.

Figure 1 overleaf shows the distribution of employment across SMEs in 2006 and 2008. Finance is clearly the smallest SME employer, and industrial activity - specifically processing

¹⁰ excluding farms

- the biggest. Small (1%) declines occurred in agriculture and industry between 2007 and 2008, and small expansions of about the same size in consumer services, real estate and rental businesses. There were smaller gains in vehicle and domestic appliance trade and maintenance (0.6%) and hotels and restaurants (0.5%). Other categories show no significant change.

Between the end of 2007 and October 1st 2008, employment in SMEs grew by 4.3% to 290,100.

FIGURE 1: EMPLOYMENT IN SMEs IN KYRGYZSTAN BY SECTOR, 2006 AND 2008.

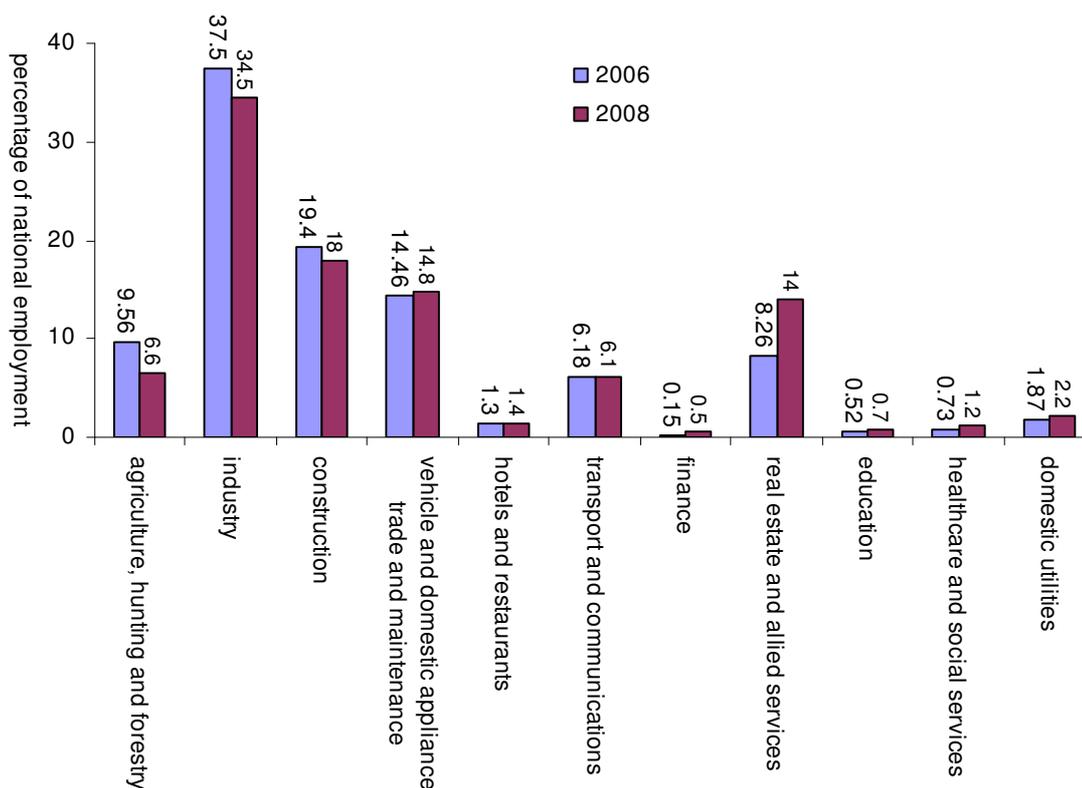


Table 1 overleaf shows changes in gross value added by SMEs over the period 2005 to 2008, from 44.397 billion KGS in 2005, to 51.505 billion KGS in 2006, 63.374 billion KGS in 2007 and 60.358 in the first nine months of 2008. This equates to a growth in value added by SMEs of from 44% of GDP in 2005 to 45.2% in 2007 and 46% in 2008. Of that 46%, small enterprises contributed 6.3%, medium enterprises 4.1%, one-man businesses 16.9% and farms 18.8%. In 2008, small enterprises accounted for 13.5% of all value added by SMEs, medium enterprises 9%, one-man businesses 36.5% and farms 41%.

Of particular interest to this study are recent reductions in value added by medium-sized enterprises and one-man businesses. The latter class of enterprise, being too small to organise alternative or back-up sources of electricity, may have been particularly vulnerable to power cuts.

TABLE 1: GROSS VALUE ADDED (GVA) BY SMEs, 2005 TO OCTOBER 1ST 2008

		2005	2006	2007	to Oct 1 st 2008
GVA, KGS x 10 ⁶	small enterprises	6,670.6	6,649.5	7,955.5	8,325.0
	medium enterprises	3,934.6	5,387.3	5,959.5	5,422.8
	one-man businesses	16,740.1	20,229.7	24,898.5	22,130.0
	farms	17,051.7	19,238.5	24,560.1	24,479.9
	total	44,397.0	51,505.0	63,373.6	60,357.7
GVA as proportion of GDP, %	small enterprises	6.6	5.8	5.7	6.3
	medium enterprises	3.9	4.7	4.3	4.1
	one-man businesses	16.6	17.8	17.8	16.9
	farms	16.9	16.9	17.6	18.8
	total	44.0	45.2	45.4	46.0

In 2005 small and medium businesses as a group (but excluding farms and one-man businesses) experienced losses, despite the fact that the proportion of profitable businesses increased and that total accounts receivable also increased while total accounts payable diminished.

According to the NSC, a number of sectors experienced falls in enterprise profitability between the beginning of 2007 and October 1st 2008. Profits in agriculture, having grown in 2007 by 8.8%, fell by 0.7% in the first nine months of 2008. In construction positive growth of 9.2% was transformed into contraction of 4.5% over the same period. Profit growth in vehicle and domestic appliance trade and maintenance fell from 35.0% to 21.5%; real estate and allied services saw a 2.2% decline in profit grow into a 10.6% decline.

Other sectors improved in profitability. In financial services, transport and communications a fall in profits of 5.6% became an increase of 16.9%; in education, negative profit growth of 0.9% became a positive increase of 3.7%; in healthcare, 2007 saw profits shrink by 8.5%, but then grow by 6.0% in the first nine months of 2008; and profits on domestic utilities and social services, having grown by 1.0% in 2007, increased by 10.4% in the first nine months of the following year.

In the first nine months of 2008, 33.7% of all small and medium enterprises (again, excluding one-man businesses and farms) made profits. Over the same period, 31.9% of small enterprises were profitable; the figure for medium enterprises was 54.4%. The corresponding figures for 2007 were all higher: 41.4%, 39.1% and 66.6% respectively.

In the first nine months of 2008 the most profitable sectors were financial services, in which 56.1% of enterprises made profits, and vehicle and domestic appliance trade and maintenance, in which 36.1% of enterprises were profitable. The least profitable sectors were domestic utilities and social services, in which only 4.5% of enterprises made profits, and healthcare, in which 28.4% of businesses made profits.

The proportion of medium enterprises in financial services achieving profit in the first nine months of 2008 was half that of 2007.

Over the same period, the least profitable sectors for all enterprises were hotels and restaurants, in which 44% of businesses made losses; construction, in which 39.4% made losses; and in industry and trade, for which the figures are 36.8% and 36.6% respectively.

The biggest decline in profitability in the first nine months of 2008 occurred in construction, where the number of loss-making enterprises grew by 7%. The figure for the hotels and restaurants sector is 0.01%. In healthcare, the proportion of loss-making enterprises fell from 39.8% in 2007 to 28.2% in 2008. In education the corresponding figures are 42.1% and 30.5% respectively. Financial services and trade saw the fastest growth in the proportion of enterprises making profits. This is probably largely attributable to macroeconomic factors such as inflation.

Healthcare, education, domestic utilities and social services are not energy-intensive activities, so it is unlikely that the power cuts had a serious impact on them.

SMEs accounted for 24.4% of the Republic's industrial production in the first nine months of 2008; for 2007 the figure was 27.8%. The corresponding figures for construction contracting are 87.4% and 85.5% respectively; for agricultural production 61.5% and 60.8%; for vehicle and domestic appliance trade and maintenance 86.7% and 85.6%, for hotel and restaurant services 88.3% and 92.2%; for transport services 60.5% and 56.6%; and for communications services 4.9% and 4.6%. The fastest growth thus occurred in transport, although construction contracting and trade also showed some expansion; the most marked contraction was in hotel and restaurant services.

Provisional data from the NSC puts the volume of SME activity in vehicle and domestic appliance trade and maintenance during the first nine months of 2008 at 86.7% of the national total. The 2007 figure was 87.5%.

Hotel and restaurant turnover in the first nine months of 2008 amounted to 4.2 billion KGS, 4.5% less than the 2007 figure. Of this amount, 63.6% was generated by small and medium enterprises and 24.7% by one-man businesses; the corresponding figures for 2007 are 74% and 16.5% respectively.

While the bulk of revenue in transport and trade was generated by one-man businesses, in hotel and restaurant services the most significant business entity was the small enterprise.

In general the statistical data indicate that the power cuts had no significant influence on SME development¹¹.

In 2008 the number of SMEs increased by 9.8% over the 2007 figure. Power cuts did not effect SMEs' contribution to GDP. Change in SME employment was minor and had no substantial effect on the economy as a whole. This can be explained by the fact, firstly, that the majority of businesses of all types - 64% - are in farming, which is not highly sensitive to changes in electricity supply; and secondly that the majority of SMEs - 68% - are located in Bishkek, where the power cuts were of relatively short duration.

Cross-sectoral distribution of employment showed no significant change except in real estate operations, where employment increased despite an abrupt fall in the number of transactions, the effect of the international financial crisis. This increase in employment can

¹¹ This suggests that the majority of respondents to a USAID-supported opinion survey conducted by the International Republican Institute were basically correct in their assessments of the damage likely to be caused by the power cuts. Asked by the survey, 'What worries you most?' 42% chose the 'the international financial crisis' option; only 7% identified the Republic's energy crisis as their main source of anxiety.

be attributed to inertia - an unwillingness to abandon a source of relatively quick and easy profit.

The NSC data used here are only provisional: exact figures will only be available in the middle of 2009. Data shortcomings are in part due to the fact that the NSC's *Small and Medium Enterprises in the Kyrgyz Republic* is now only published annually, having once been a quarterly publication. The lack of adequate statistical data and the short period of time allowed for this research have permitted only preliminary review and analysis of the subject of this study.

Moreover many of the entities under study operate in the shadow economy, which only complicates the task of assessing their turnover, profits and losses, and the influence of the power cuts. The practice of regular review and analysis of economic performance is not widespread among entrepreneurs in Kyrgyzstan: a number of directors of small and one-man businesses have said that the power cuts damaged them, but that they cannot quantify the damage.

The reader of this report is therefore advised to make allowances for the fact that we have been unable to consider the unobserved economy. Hidden economic activity operates within all sectors of the economy and is growing in volume.

All these factors, allied with the co-occurrence of the international financial crisis, hinder an exact assessment of the influence of the power cuts.

3. Enterprises' financial and production losses attributable to power cuts

Time being short - only one month was allowed for this research - the authors opted for the use of a questionnaire (see Annex 5) to canvass the opinions of leaders of sectoral and regional business associations. Interviews, a qualitative research technique, were also used.

The normal function of these business associations is the promotion of their members' interests on regional or sectoral planes. They are well informed on the status, perspectives and problems of the enterprises that comprise their membership. Leaders of the following business associations received questionnaires and were interviewed.

- the Association of Communications Operators;
- Legprom, the Association of Light Industry Enterprises;
- the Association of Fruit and Vegetable Enterprises;
- the Union of Entrepreneurs of Kyrgyzstan;
- the Association of Finance and Credit Agencies;
- the Association of Forestry Products Processing Enterprises;
- Soyuz Tekstil, a textiles-sector grouping;
- the International Business Council; and
- Bishkek Business Club.

Enquiries were also sent to the following associations, but no responses were received:

- the Association of Regional Broadcasters;
- Imarat Kurulush, a construction-sector grouping;
- the Association of Pharmacists;
- Farm Union, an agriculture-sector grouping;
- the Association of Petroleum Traders; and
- the Association of Markets and Trade Enterprises.

The nine business associations that responded to our enquiries represent 578 enterprises¹² and the following nine sectors:

- mining
- telecommunications
- light industry
- agro-processing
- financial services
- timber processing
- tourism
- trade
- services

The membership of the Union of Entrepreneurs of Kyrgyzstan includes enterprises from three further sectors:

- food

¹²two - the Union of Entrepreneurs of Kyrgyzstan and the Bishkek Business Club - are broader associations whose members include not only individual enterprises but also business associations.

- construction
- machine building

With the exception of Soyuz Tekstil and Legprom, both of whose memberships are located predominantly in Bishkek and Chui region, the associations from whom we received responses represent enterprises from throughout the Republic.

Interviews revealed that none of the associations kept detailed statistics on members' complaints about the power cuts; although all interviewees stated that their members had suffered from their effects. None of the business associations could provide an exact statement of the volume of members' financial and production losses resulting from the power cuts, although they were able to give a precise expression of these losses in percentage terms. This last fact may be attributed to a lack of financial transparency in businesses in the Republic.

Responses indicated that approximately 70% of enterprises represented by the associations taking part in our survey had suffered losses as a result of the power cuts, and continue to do so. The most seriously hit enterprises were the members of the Association of Fruit and Vegetable Enterprises, all of whom suffered such losses; and the least seriously affected were members of Soyuz Tekstil, of whom only 20% were (this relatively low figure may be connected with the fact that the power cuts were at their worst in September and October, when activity is for seasonal reasons normally low). Our Legprom respondent told us that 90% of Legprom members had been affected by the power cuts.

Respondents were asked to rate the effect of the power cuts on nine aspects of enterprises' business activities. A scale of 1 to 9 was used, a score of 1 indicating no disruption. Figure 2 overleaf aggregates their responses.

Figure 2 shows that the three aspects of business activity most seriously affected by the power cuts were productivity, costs and earnings. The three least affected areas were the productivity of administrative staff, staffing levels and access to raw materials.

The respondent for the Association of Fruit and Vegetable Enterprises observed that the power cuts had forced its members to change their production techniques to extend their raw materials' shelf-lives - particularly by salting - which in turn affected the quality of their final product and thus had a major impact.

In some cases personal motivation suffered¹³, leading to loss of staff through emigration. This problem mainly affected telecommunications and timber processing enterprises.

Business association leaders were also asked about the impact of the power cuts on profit levels. No responses specified exact data on such financial losses, so respondents were asked to indicate an average level of losses in turnover, marginal profit and net profit in percentage terms. Table 2 overleaf summarises the responses.

FIGURE 2: BUSINESS ASSOCIATION LEADERS' ASSESSMENTS OF THE IMPACT OF THE POWER CUTS ON NINE ASPECTS OF ENTERPRISES' BUSINESS

¹³ In a *Deutsche Welle* interview, Valentin Bogatyrev, ex-Vice President of the Association of Political Scientists of Kyrgyzstan, said that one of the most disturbing effects of the power cuts was psychological, leading to a significant increase in depression and the feeling that the Kyrgyz Republic could no longer be regarded as a developed country since it was incapable of meeting its people's basic needs.

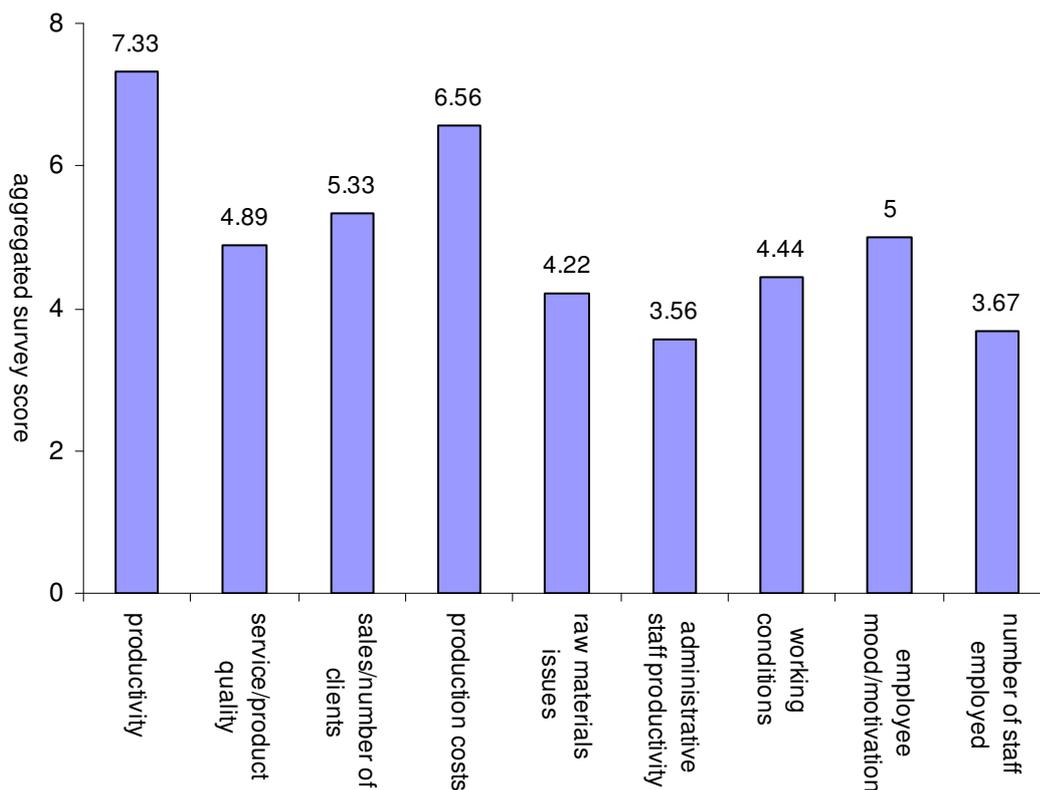


TABLE 2: IMPACT OF POWER CUTS ON EARNINGS, MARGINAL PROFIT AND NET PROFIT AS ESTIMATED BY SURVEY RESPONDENTS.

Respondent	Response
Association of Communications Operators	Turnover reduced by approximately 25%
Legprom	Turnover reduced by 15-20%
Association of Fruit and Vegetable Enterprises	Turnover reduced by approximately 25%
Union of Entrepreneurs of Kyrgyzstan	Turnover reduced by approximately 20%
Association of Finance and Credit Agencies	Marginal profit reduced
Association of Forestry Products Processing Enterprises	No data available
Soyuz Tekstil	Marginal profit reduced by 10-15%
International Business Council	'Difficult to say'
Bishkek Business Club	Marginal profit reduced by 20%

The majority of the losses suffered by financial and credit agencies in the period under study can be attributed to the international financial crisis. The representative of the Association of Finance and Credit Agencies (henceforth AFCA) stated that members' gross lending volume in November 2008 was approximately half that of April of the same year, which is consistent with a halving of loan enquiries, from roughly 30,000 in April to 14,000 in November, addressed to the Credit Information Bureau, a member of the AFCA. Lending is the principal revenue source of AFCA members. The main effect of the power cuts was the extra expense incurred by AFCA members in ensuring that supplies of electricity were uninterrupted.

The telecommunications sector reported the most significant losses of all those participating in this study, as their dependence on high-quality uninterrupted electricity supplies forced their energy costs up. Numerous complaints were received by the Association of Communications Operators reporting equipment damage, data loss and additional expense associated with the purchase and maintenance of generators and voltage stabilisers. At the peak of the power-cut period KyrgyzTelecom was buying approximately 2 tonnes of diesel

fuel per week to power its generators. The earnings losses reported for this sector reflect its direct dependence on reliable electricity supplies, in the absence of which potential customers abandoned attempts to use communications services and thus reduced revenue. Additional expenditure on fuel and the replacement of damaged equipment exacerbated the impact on the sector's profitability.

Legprom representatives stated that their members' use of diesel generators increased their production costs by an average of 10%.

The International Business Council found it difficult to assess members' financial losses resulting from the power cuts, mainly because the Council's membership is both large and diverse.

The following seem to have been the commonest enterprise-level strategies adopted to minimise the negative impacts of the power cuts:

- introducing additional shifts, usually either at night or at weekends;
- rescheduling work around power cuts schedules;
- using alternative sources of energy;
- using less energy-intensive techniques;
- relocating production;
- reducing electricity consumption; and
- introducing more energy-efficient equipment.

The positive aspects of the adoption of these strategies should not be underestimated, particularly in relation to the timber-processing sector.

An important question concerns the impact of the power cuts on the attraction of foreign investment. The financial sector, in which Kazakh capital plays an important role, suffered - indirectly, but nevertheless considerably - from the effects of the international financial crisis on the financial situation in Kazakhstan. Business associations representing other sectors were unable to contribute any data on foreign investment - this is an area on which information is generally lacking.

Nevertheless, the International Business Council stated that Coca-Cola Bishkek Bottlers had had to delay the launch of a new production line because of a requirement that it reduce its electricity consumption by 30%. Coca-Cola Bishkek Bottlers provided the following information (table 3 overleaf) on the reduction of its tax bill resulting from lost production associated with reduced electricity supplies.

The table shows that Coca-Cola's total tax bill for the first nine months of 2008 was more than 5.3 million KGS less than the anticipated figure, a shortfall of 13%; that production and turnover were respectively 9% and 8% lower; and that road tax, emergency situation deductions and profits tax collectively amounted to more than 2.5 million KGS less than had been expected.

TABLE 3: LOSSES IN REVENUE AND ASSOCIATED REDUCTIONS IN TAX LIABILITIES EXPERIENCED BY COCA-COLA BISHKEK BOTTLERS AS A RESULT OF REDUCED ELECTRICITY SUPPLIES¹⁴

	Anticipated	Actual	Shortfall (%)
sales volumes, litres x 10 ³	imports	2,723	
	produced in-house	8,531	
	total	9,119	9
turnover, KGS x 10 ³	167,390	153,183	8
costs, KGS x 10 ³	86,939	88,024	
gross revenue, KGS x 10 ³	80,451	65,159	19
accrued VAT liability ¹⁵ , KGS x 10 ³	33,478	30,637	8
depreciation, KGS x 10 ³	21,400	21,400	
road tax, KGS x 10 ³	1,259	823	35
emergency situations deduction, KGS x 10 ³	2,379	1,717	28
profits tax excluding deductions, KGS x 10 ³	5,541	4,122	26
total tax payments, KGS x 10 ³	42,657	37,298	13
total tax payments excluding VAT, KGS x 10 ³	9,179	6,662	27

Large industrial enterprises with their own power supply lines of 6 to 10 kV capacity suffered relatively little from power cuts, but they did have to ration their electricity use. This affected lighting, heating and the use of office equipment.

Cafes, restaurants, shops and other such entities experienced losses associated with the spoiling of foods, loss of business and, if they used generators to make up the electricity shortfall, increased costs.

Service and financial enterprises experienced interruptions to their normal routines and impaired working conditions, especially as concerned lighting and heating, which reduced staff motivation, productivity and revenue.

Small home-based businesses, workshops and shops suffered equipment damage, spoiling of materials, impaired staff motivation, and at times unscheduled closures.

Electricity transmission and distribution enterprises suffered damage to their own networks as a result of the power cuts: with power cuts typically occurring twice a day, and each power cut requiring the enterprise concerned to perform a two-step safety procedure, during a 150-day period such enterprises had to go through 600 such switching procedures. This led to major impairments in system efficiency, damaged the systems, and required enterprises to increase system monitoring. Electricity distribution companies suffered losses because they were selling less electricity; and accordingly paid less in taxes.

On the other hand, the shortage of electricity did stimulate certain types of economic activity. Coal consumption rose, as did sales of gas and diesel fuel, generators and associated accessories, UPSs, batteries, transformers, solar power equipment, gas- and coal-fired boilers and heating systems and associated services.

¹⁴ © 2008 Coca Cola Bishkek Bottlers; Ms. Dinara Iskakova, Finance Director, +996 312 357118, Dinara_Iskakova@cci.com.kg

¹⁵ i.e., VAT liability calculated as a proportion of sales

Technical conclusions

As a result of the power cuts and associated electricity-saving policy, electricity consumption in 2008 is expected to have been reduced by 2 billion kWh over that for 2007 (2007 consumption was 10.9 billion kWh; the provisional figure for 2008 consumption is around 8.9 billion kWh, more than 18% less). On December 18th 2007, electricity consumption reached 58.23 million kWh; exactly a year later, it was 37.25 million kWh, 20.98 million kWh, or 36% less. It is accordingly undeniable that the electricity-saving policy achieved significant electricity economies.

However, the main measures taken in 2008 being disconnection of three-phase electricity supplies, power cuts over the period August to October, and consumption ceilings, it is possible to imagine a better planned approach reflecting the varying needs of different kinds of consumer and thus achieving the same economies but with far less damage or disruption.

Recommendations

If further drastic electricity-saving measures are called for, the following guidelines could help to avoid the damage and disruption caused by the measures taken in 2008.

1. Formulate and adhere to clear schedules of night disconnections.
2. Do not disconnect the following consumers:
 - multi-storey buildings using communal systems for the supply of hot water and heating;
 - cold-water pumping stations;
 - district-level heating pumps;
 - medical institutions; and
 - strategic objects.
3. Ensure that all consumers are aware of the disconnection schedules.
4. Introduce limits on electricity supplies between midnight and 0600.
5. Limit the quantity of electricity supplied along power supply lines of 6 to 10 kV capacity to autumn levels.

4. Household losses

Two principal sources were consulted to arrive at an estimate of the damage caused by the power cuts to household property. These were:

- technical advice from the Bosch domestic appliance service centre, Bishkek, on the nature of the risk to domestic appliances posed by the power cuts¹⁶; and
- statistics on the number of complaints and other approaches to consumer rights groups.

Again, time and budget limitations on this study precluded more thorough investigation of this issue.

The Bosch spokesperson explained that a daytime power cut brings serious danger of damage to appliances when the supply is reconnected because of the voltage surge that often accompanies reconnection. Complaints had been made of damage to the following items of domestic equipment as a result of surges occurring when electricity supplies were restored after a power cut:

- the elements of standard light bulbs; starters for discharge lamps;
- television power units and circuitry;
- refrigerator starters, motors and compressors;
- washing machine control units and motors;
- satellite antenna tuners and circuitry;
- the elements of electric kettles, irons and cookers;
- the motors and control units of meat grinders, juice extractors and mixers;
- computer control units (and of course the data stored on the computer);
- the starters used in lifts and water pumps;
- the microwave generators used in microwave ovens.

Clearly, irregularities in power supply can damage a wide range of domestic electrical appliances.

To investigate the number of complaints that had been made to consumer protection bodies by owners of domestic appliances that had been damaged as a result of the power cuts, we consulted three such bodies:

- the Aikyn Republican Association for the Protection of Consumer Rights;
- the Department of Consumer Rights Protection under the State Agency on Antimonopoly Policy and Promotion of Competition under the the Government of the Kyrgyz Republic; and
- the Vigns consumer rights centre.

Over the period August 1st to November 30th 2008, a total of 27 complaints concerning domestic appliances damaged as a result of the power cuts were registered with these three bodies. Of these 27 complaints, 20 had been made to Aikyn, 4 to the State Agency, and 3 to Vigns. Discussions with employees of all three consumer protection bodies revealed that many more complaints had been made than had been registered, especially from September

¹⁶Two non-commercial bodies, namely Kyrgyzstandard - the National Institute of Standards and Metrology of the Kyrgyz Republic - and the Kyrgyz Chamber of Commerce and Industry, were approached for their technical advice on this question, but both refused on the grounds that they were not competent to comment.

to November. It is unfortunate that more of these complaints were not registered officially; the low level of official registration of such complaints was attributed to civic inertia and the fact that for a complaint to be registered it has to be submitted in writing: complaints made by telephone are not registered.

Obviously the above statistics give a far from complete picture. If there had been a helpline designed to serve people whose domestic appliances had been damaged in this way, and which would have recorded all calls as a matter of course, our statistics would have been rather more representative of the actual situation.

Conclusion

In 2008 Kyrgyzstan faced its most serious energy crisis in 15 years. Unprecedented electricity-saving measures were needed if the Republic's entire national electricity network were to avoid serious damage. The crisis revealed and intensified many underlying problems, including a failure to increase generating capacity since the early 1980s. The physical condition of much of the infrastructure was in very poor condition.

Economic growth in a number of sectors slowed down slightly in 2008. In an attempt to assess the degree to which this slowdown was the result of the electricity crisis, and to what extent it was rather an effect of the international financial crisis, we studied the influence of the power cuts on small and medium enterprises. SMEs collectively account for approximately 46% of the Republic's GDP.

The information used in this study came from a variety of sources. NSC data are provisional; firmer information will only become available in the middle of 2009. Moreover NSC data on SMEs are not always accurate. Indeed, it is very difficult to obtain accurate information on SME activity anywhere, partly because much economic activity in the Republic takes place in the shadow economy - indeed the shadow economy is growing very healthily - and partly because many entrepreneurs do not track the performance of their businesses as thoroughly as they should. Sectoral business associations informed us that although many of their members were sure that their businesses had suffered as a result of the power cuts, the volume of these losses was unknown.

So it was impossible to assess accurately the economic damage caused by the power cuts. We know that there was damage but can only quantify it very vaguely.

Annexes

ANNEX 1: MAIN SOCIO-ECONOMIC INDICATORS FOR THE KYRGYZ REPUBLIC

		2008	2008 as percentage of 2007	2007 as percentage of 2006
GDP ¹⁷ , KGS x 10 ⁶	total	185,013.6	107.6	108.5
	excluding Kumtor	176,598.8	105.4	109.0
Industrial production, KGS x 10 ⁶	total	85,868.2	114.9	107.3
	excluding Kumtor	51,300.2	97.9	110.3
Electricity production, transit and distribution, KGS x 10 ⁶		13,730.5	106.4	98.0
Agriculture, hunting and forestry, KGS x 10 ⁶		112,449.6	100.7	101.5
Investment in fixed capital, KGS x 10 ⁶		29,208.0	94.6	105.0
Construction, KGS x 10 ⁶		25,170.9	89.2	132.3
Vehicle and domestic appliance trade and maintenance, KGS x 10 ⁶		183,113.1	108.8	115.1
Hotel and restaurant turnover, KGS x 10 ⁶		7,211.1	113.0	124.9
Unemployment, thousands		67.2	94.3	97.1

¹⁷ the figure for 2008 GDP is provisional.

ANNEX 2: THE IBC'S 2008 ASSESSMENT OF KYRGYZSTAN'S INVESTMENT ATTRACTIVENESS¹⁸

Findings of the last quarter's research show that the economic situation and the investment climate are far from optimal. According to the IBC report, the number of investors who consider that the investment climate has become 'far worse' has increased by 1% over the previous figure to 33%.

The IBC study, which considers more than \$1 billion of investment in Kyrgyzstan's economy and more than 10,000 entrepreneurs, reveal that last year the profits of entrepreneur-respondents increased by an average of 7%, and that in the following 12 months employment is expected to grow by 10%. This represents a decline from the previous quarter's findings.

Respondents invested about \$219.85 million last year, but investment planned for the next 12 months has fallen back to \$226.65 million. Although this is a 3% increase over the previous 12 months, it is distinctly lower than the findings of the previous study. Although it represents an increase in investment activity over the previous period, this quarter's actual investment figures are lower than was expected in the previous study.

The optimism that characterised the last study's assessment of the economic situation and investment climate has completely evaporated, and all indicators are now negative. Moreover the outlook for the economy as a whole, as for the investment climate, has worsened significantly although the indicators are not yet negative.

In mining, an important sector of investment attraction, indicators continue to fall: actual investment is 25% of last year's, and figures for expected investment over the next 12 months have fallen sharply - to 12.5% of the previous year's figure. This is a decrease from the 40% (actual investment in mining) and 20.7% (planned) reported in the last survey. The reduction in investment is partly a result of uncertainty surrounding a new draft law on mineral resources, and partly of cases, hopefully unusual ones, of a lack of mutual understanding between large foreign investors and the government.

At the same time, the banking and financial sectors continue to grow. Investment in these sectors is expected to grow by 25% over the next 12 months.

Investor confidence

The number of respondents that consider the investment climate to have worsened since the last survey has increased, 43% giving it a negative score. Last quarter's score of +3 was thus transformed into this quarter's -19. Last quarter's economic situation scored +12; this quarter's -12. The current 6-month economic forecast is no more optimistic: it fell in the same period from +24 to +3. The forecast for the investment climate also fell, from +29 to +5.

The proportion of respondents that believe the economy situation has become 'a little worse' increased from 7% to 23%, and the proportion that believe it has become 'much worse' grew from 1% to 15%. The corresponding assessments of the investment climate show increases of 6% to 10% and from 1% to 33%.

Regional differences

¹⁸ This is a translation of an article published by AKIpress news agency on September 9th 2008.

As with previous surveys, the most recent one revealed that companies in the south of Kyrgyzstan assess the economic situation more positively than those in the north. The overall assessment of the economic situation is 0 in the south and -17 in the north. Enterprises' assessment of the investment climate fell in both regions: to 0 in the south and to -28 in the north. The 6-month economic forecast remains positive in both regions: in the south, the proportion of optimistic investors grew from 36% to 69%, while in the north it fell from 44% to 34%. In the south 25% of respondents expect no improvement in the investment climate in the near future; in the north the figure is 11%.

Business environment

The survey revealed that access to finance continued to worsen, with the score for this category declining from September 2007's +26 to -13. This reflects difficulties connected with the fact that the banking sector, mainly the property of Kazakh banks, is subject to influence from the mortgage crisis in Kazakhstan. Respondents also observed a worsening of the legal environment, whose score fell from +8 for the previous period to 0. The score for the tax environment remained unchanged at +6. The assessment of the customs service fell from +0.1 to -2. One more category in which a significant reduction occurred was that of business regulation, whose score fell from +7 to -12. The level of optimism fell: after the adoption of a number of laws on business deregulation, respondents were disappointed by the poor quality with which the new laws were executed.

Fifty enterprises took part in the research. Ranging in size from businesses employing fewer than 10 people to companies with more than 1,000 staff, they were drawn from 15 sectors. Around 20% of the respondents have no foreign investments and 40% have no domestic investments. About 35% of the businessmen that took part in the survey answer to Kyrgyz investors that hold controlling share-interests. Thirty-four per cent of the respondents are located in Osh, Jalal-Abad and Batken, and 66% in Bishkek, Chui, Talas, Issyk-Kul and Naryn oblasts. The research was conducted from April 1st to June 31st 2008.

Investors' priorities

Changes were observed in the relative importance of issues considered by businessmen interested in investing in the economy of Kyrgyzstan. Investors were asked which issues were of principal importance and which ones were of secondary importance during the planning of new investment in the economy of the Kyrgyz Republic; and how, for each issue, they would rate Kyrgyzstan's competitiveness: as 'better than other countries', 'worse than other countries', or 'the same as other countries'. Respondents could choose from 30 issues.

The previous survey had revealed the 'availability of qualified personnel' as the most important one during the planning of investments in Kyrgyz Republic. This issue now occupied second place, replaced by 'predictability of rules, laws and instructions' (this had occupied 4th place in the previous survey). 'The economy's growth rate' rose from 8th place to 5th: this issue is growing in importance for enterprises.

The issue of 'security and stability' fell to 3rd place, and that of 'tax rates' moved into 4th. The 'regulation of business environment, licensing and the permits system' moved into 6th place, and the 'taxation administration' into 7th. 'Exchange rate stability' came in 8th, 'corruption among civil servants' came in 9th, and 'consistency in court decisions' 10th. 'Telecommunications and the internet' left the top ten to occupy 11th place.

ANNEX 3: SMES IN KYRGYZSTAN: NUMBERS AND EMPLOYMENT, 2005-2008¹⁹

		2005		2006		2007		2008 first nine months	
		total	percentage of previous year	total	percentage of previous year	total	percentage of previous year	total	percentage of previous year
Number of SMEs	small businesses	7,689	99.5	8,424	109.6	9,002	106.9	9,809	109.8
	medium businesses	782	103.4	843	107.8	850	100.8	868	100.7
	one-man businesses	163,119	109.3	179,613	110.1	193,425	107.7	201,928	106.0
	total	247.3	104.7	267.5	108.2	284.2	106.2	290.1	104.3
SME employment, thousands	small businesses	39.4	94.5	44.8	113.7	47.8	106.7	48.8	103.2
	medium businesses	44.8	98.9	43.1	96.2	43.0	99.8	39.4	97.6
	one-man businesses	163.1	109.3	179.6	110.1	193.4	107.7	201.9	106.0
SME employment as percentage of national total ²⁰	total	12.8		12.8		13.2			
	small businesses	2.0		2.1		2.3			
	medium businesses	2.3		2.1		2.0			
	one-man businesses	8.4		8.6		9.0			

¹⁹ Figures for 2005-2007 based on *Small and medium enterprise in the Kyrgyz Republic*, NSC, 2003-2007.

²⁰ excluding farms.

ANNEX 4: DISTRIBUTION OF SMALL AND MEDIUM ENTERPRISES BY REGION (FIGURES FOR END OF PERIOD; PERCENTAGES OF REPUBLICAN TOTAL)

		2005	2006	2007	to October 1 st 2008
Kyrgyz Republic	total	100	100	100	100
	small	90.8	90.9	91.4	91.9
	medium	9.2	9.1	8.6	8.1
Batken Region	total	2.5	1.7	1.5	1.5
	small	2.2	1.5	1.3	1.2
	medium	0.3	0.2	0.2	0.2
Jalalabat Region	total	4.6	4.4	4.1	3.9
	small	3.8	3.7	3.5	3.3
	medium	0.8	0.8	0.6	0.6
Issyk-Kul Region	total	3.6	3.8	3.6	3.3
	small	3.0	3.2	3.1	2.7
	medium	0.6	0.5	0.6	0.5
Naryn Region	total	1.8	2.0	2.2	2.0
	small	1.6	1.8	2.0	1.8
	medium	0.2	0.2	0.2	0.2
Osh Region	total	3.8	4.9	3.9	3.5
	small	3.4	4.6	3.6	3.2
	medium	0.4	0.3	0.4	0.3
TalasRegion	total	1.7	1.7	1.4	1.1
	small	1.5	1.5	1.3	1.0
	medium	0.2	0.2	0.2	0.1
Chui Region	total	10.5	11.3	10.2	10.6
	small	8.8	9.5	8.8	9.3
	medium	1.7	1.7	1.4	1.3
Bishkek City	total	63.8	63.3	66.6	68.0
	small	59.4	58.6	61.8	63.5
	medium	4.4	4.7	4.7	4.5
Osh City	total	7.6	6.9	6.4	6.0
	small	7.0	6.5	6.0	5.6
	medium	0.6	0.4	0.4	0.4

ANNEX 5: QUESTIONS ASKED IN THE QUESTIONNAIRE USED IN THE SURVEY OF SECTORAL BUSINESS ASSOCIATIONS

- 1 Name of business association
Sector
Number of members
Area covered
- 2 Did any of your members complain about or report on the power cuts?
Did the power cuts have any effect on the activities of the enterprises in your sector/region?
- 3 How many enterprises/what percentage of enterprises contacted you about problems caused by the power cuts?
- 4 Indicate the impact of the power cuts on the following aspects of your members' business activities. Use a number from 1 to 9, '1' meaning that there was no impact, and '9' a high degree of impact.
 - 4.1 productivity/speed/regularity of service/product provision
 - 4.2 qualities of product/service provision
 - 4.3 sales/number of clients
 - 4.4 production costs
 - 4.5 delivery times, availability, volume, price and useful life of raw materials
 - 4.6 productivity of administrative staff
 - 4.7 working conditions (e.g., lighting, heating, air-conditioning)
 - 4.8 employee mood/motivation
 - 4.9 number of staff employed
 - 4.10 other
- 5 Evaluate the effect of the power cuts on the following financial indicators as they relate to enterprises within your sector/region.
 - 5.1 profit
 - 5.2 marginal profit
 - 5.3 net profit
 - 5.4 other
 - 5.5 difficult to say
- 6 How did the power cuts influence foreign investment in your sector/region?
 - 6.1 investors refused to finance new investment projects
 - 6.2 investors withdrew from the financing of existing projects
 - 6.3 no effect
 - 6.4 difficult to say
- 7 If your answer to the previous question stated that investors either refused to finance new investment projects, or that they withdrew from existing ones, state the volume of financing lost by these projects.
- 8 What measures were taken by your members to cope with the power cuts?