

Short-Circuiting Reform: Informal Politico-Economic Networks in Georgia's and Kyrgyzstan's Electricity Sectors¹

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This is a brief summary of field work conducted in August-September 2007. This draft presents some key findings of the research. The final, full version will be published as a journal article.

Abstract: Both Georgia and Kyrgyzstan have recently experienced a change in regime (2003 and 2005 respectively), due in part to the public's dissatisfaction with mismanagement of the energy sector. Electricity outages, particularly in Georgia, became visible proof that the government's ability to provide goods and services was literally 'short circuited'. This paper argues that the mismanagement of the electricity sector in both states was a deliberate tactic by state and non-state actors operating in politico-economic networks for private gain. Their operations deterred the development of a sustainable intra- and inter-state energy system. However, whereas Kyrgyzstan's electricity sector remained stagnant after 2005, the new Georgian government's efforts to enhance management and performance have generated positive dividends. One explanation may be that informal networks continue to monopolize transactions in the Kyrgyz energy sector.

Outline of the Paper:

1. Introduction
2. Understanding Socio-Economic Networks
3. Why compare Georgia and Kyrgyzstan
4. Parallel and Divergent Paths of Development
5. Schemes of Socio-Economic Networks
6. Conclusion

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Introduction:

Both Georgia and Kyrgyzstan have recently experienced a change in leadership (2003 and 2005 respectively), due in part to the public's dissatisfaction with the management of the energy sector. That is, mismanagement of Georgia's and Kyrgyzstan's energy sectors for much of the past decade and a half of independence has negatively impacted on economic growth. The fiscal management of their energy sectors and resultant poor state of the infrastructure has also meant that regional players have not been able to rely on these states as both consumers and transit states for hydrocarbons.

However, whereas Georgia was an energy deficit state prior Rose Revolution in 2003, the new Georgian government's efforts to enhance electricity sector management and performance have outpaced those of Kyrgyzstan. Further, economic growth and relative stability meant that Georgia once again became a sought after transit route from the Caspian to the Black Seas. During this same time, Kyrgyzstan's electricity sector reform remained stagnant, leading to financially crippling technical and commercial losses.

This paper addresses *why Georgia and Kyrgyzstan have followed divergent paths in electricity sector reform since 2005*. During my previous doctoral research on Georgia², it became apparent that transactions in the energy sector were monopolized by informal politico-economic networks comprised of state and non-state stakeholders, locked in a struggle for resources. Alongside the state was another ordering of actors, a second if not substitute economy, and an unwritten but understood set of rules that served the interests of those in power and sustained the livelihoods of the rest. Thus the ineffectiveness of the energy system was not necessarily about a failure to develop, as it was a tool to strengthen those operating within an alternative system of networks.

This paper concludes that where as the majority of networks lost their monopoly in Georgia's energy sector after the change in leadership, they actually strengthened in Kyrgyzstan, preventing

² Refer to yet unpublished LSE doctoral thesis: Closson, Stacy, "State Weakness in Perspective: Trans-territorial Energy Networks in Georgia, 1993-2003." Doctoral Thesis, London School of Economics and Political Science, 2007.

necessary reforms. The debilitating results can not only be viewed in Kyrgyzstan's internal electricity sector, but also on the state's inability to take advantage of regional arrangements.

The research methodology is a comparative study, identifying casual effects as a result of examining two systems. I explain differential changes in each state's energy development by the degree of activity of informal networks in the two countries electricity sectors. In Kyrgyzstan, I spent six weeks conducting over 30 expert interviews, collected available data from official institutions, and searched local news archives in Kyrgyz, Russian, and English languages. Finally, I took a field research trip to the Toktogul Hydroelectricity Station. For the purposes of protecting Kyrgyz experts, I will not mention specific names or titles of persons interviewed.

This paper contains four sections. The first section briefly explains the notion of networks. The second section addresses why Georgia and Kyrgyzstan are appropriate states for comparison. The third section explores their paths of development. The fourth section features several schemes of the networks operating in the electricity sector. The final section discusses implications of the network activity on the state.

Understanding Socio-Economic Networks

In the previously mentioned doctoral thesis, I developed a network model to understand socio-economic relations in a post-Soviet state. In this model, I envision four groups of stakeholders from the smallest to the largest group: elite, bureaucracy, business groups, and consumers. The smallest, most powerful and most exclusive group is the elite. The elite is more appropriately understood as the fusion of high-level politics and business, comprised primarily of political actors at the top of governmental structures in the executive and legislative branches who use their posts to pursue business interests. It also includes a few select private entrepreneurs, related to, by blood or marriage, the head of the state and/or government. Bureaucracy is comprised of the central and district level civil servants, who secure the elite assets, but can also benefit from their own arrangements in the periphery of the state. Business groups are mostly unofficial groupings that get involved in business, including paramilitaries, organized crime groups, and criminals, but also peacekeepers acting in an unofficial capacity. Consumers are the marginalized majority, who most often do not have a choice but to participate for survival.

Structures of authority and power within the networks are predicated upon the stakeholder's relations to the ruling elite. Once inside the system, stakeholders are allowed access to state assets in the electricity sector, including generation, transmission, and distribution. The compilation of networks depends on the mission and the degree to which the network disrupt intra- or inter-state relations. The district level networks operating transmission and distribution functions tend to have the most stakeholders. Whereas, the elite-based deals involving large financial transactions across borders tend to have fewer stakeholders.

Why Compare Georgia and Kyrgyzstan?

There are three reasons that make Georgia and Kyrgyzstan good case studies for comparison. Treating these similarities as controlled factors, the answer to the question as to why their paths diverged after 2005 will be made clearer in proceeding sections.

First, both states are hydrocarbon deficient but hydropower rich. In Table 1 below, it is apparent that hydropower accounts for over 80 percent of both states' generation resources, yet they only realize 10 to 15 percent of their generation potential. Moreover, in both states about 30 percent of their total consumption of electricity depends on natural gas (and coal in the case of Kyrgyzstan). However, as they are hydrocarbon deficient, they are reliant on neighboring states for imports of gas in crucial winter months.

Table 1: Electricity Indicators in Comparison

2006	Georgia	Kyrgyzstan
Total Installed Generation Capacity	4600 MW	3,626 MW
Total Production	7.1 billion kWh	14.3 billion kWh
Annual Domestic Consumption	8.378 billion kWh	10 billion kWh
Electricity export	120 million kWh	2 billion kWh
Major Generation Source	Hydropower 85% Thermal 15%	Hydropower 83% Thermal 17%
Per Capita Consumption of Electricity	1,821 kWh	2,400 kWh

Source: USAID Georgia and the Ministry of Fuel and Energy in Kyrgyzstan.

Second, both states have minimal gas reserves and they are currently exploiting them for local consumption. Large volumes of natural gas are thought to exist along the Black Sea coast in Adjara. Gas potential may be about 125 billion cubic meters, while 8.5 billion cubic meters have already been explored. Several foreign companies are involved in Georgia's hydrocarbon exploration and production, including Anadarko, BP Exploration, CanArgo, Frontera Resources, Swiss National Petroleum, and German GWDF. Likewise, Kyrgyzstan has estimated natural gas

reserves of about 3 billion cubic meters, but these reserves are hard to exploit and only 2 fields are active. In late 2007, Gazprom announced plans that it would soon begin exploring and extracting gas in two fields in southern Kyrgyzstan.

Third, both Georgia and Kyrgyzstan are transit states for gas and electricity, but they lack a regional market or market based pricing scheme for trading. As a result of non-transparent short-term bartering arrangements, often left unfulfilled, both states have had difficult and unpredictable relations in their respective regions.

Finally, both states received significant foreign assistance. Up to 2004, Georgia received approximately US\$ 500 million in power sector assistance.³ Up to 2006, Kyrgyzstan received US\$ 135 million in power sector assistance from four international financial institutions (IFIs), not including bilateral assistance.⁴ However, by the early 2000s, the IFIs had lost confidence in the governments' will to reform.

Parallel and Divergent Paths of Development

Up to 2001, Kyrgyzstan's economy and energy sector was performing better than in Georgia. However, after 2003, Georgia made significant strides, putting into place measures to enhance economic growth. In Table 2 below, it is evident that after 2003, Georgia was able to double its GDP, while Kyrgyzstan made relatively marginal improvements.

Table 2: Economic Indicators in Comparison

GDP per capita in USD	2001	2006
Georgia	728	1779
Kyrgyzstan	308	542

³ Ulushadze, Maya. *Russia's Caucasus Energy*. South Caucasus: Regional Analytical Journal, 2005 (accessed May 20, 2005). Available from <http://www.caucasusjournalists.net>.

⁴ Asian Development Bank, Islamic Development Bank, KfW German Development Bank, The World Bank. *The Kyrgyz Republic: Joint Country Portfolio 2007*, Volume 1, April 2007 (accessed September 20, 2007). Available from <http://web.worldbank.org>

GDP in USD	2001	2006
Georgia	3.205 billion	7.830 billion
Kyrgyzstan	1.525 billion	2.822 billion

Source: International Monetary Fund, available at: <http://www.imf.org>

These economic figures are reflective of the parallel and divergent paths the two states took regarding electricity sector reform. Both states went through four stages of development of their electricity sectors. The first was 1991-1996, which for Georgia was a time of destruction and dilapidation of the energy system. Georgia experienced three wars and became reliant on Russia and Turkey, and later Azerbaijan and Armenia for electricity. Imports were plagued by system losses at almost 30 percent due to overload, decaying infrastructure, and sabotage. The situation was further exacerbated by the absence of government regulation and inefficient management. Georgia's energy sector was to continue to suffer from the loss of generation and transmission facilities in the separatist regions of Abkhazia and South Ossetia, and poor relations with Russia.

The same period for Kyrgyzstan, 1991-1996, saw a decline in revenue for the state budget from the electricity sector. Unlike in Georgia where revenue loss was due to destruction, in Kyrgyzstan the structure of consumption changed from mostly industrial users to majority domestic consumption. Over time, as less money was collected, less was spent on maintenance and upgrades. Therefore, Kyrgyzstan's loss of generation capacity was due to economic issues and was not nearly as severe as in Georgia.

The second period for both states was from 1997 to 2001. During this period, Georgia experienced stabilization as a result of the end of the wars and economic development. In fact, by this time, Georgia and Kyrgyzstan followed parallel paths of energy sector reform. Both governments enacted electricity laws separating the policy, regulatory, and ownership functions of the government. They established independent electricity regulatory commissions with authority to approve energy tariffs and issue, enforce, and revoke licenses. Finally, both governments passed a law to establish the legal framework for unbundling and privatizing the power sector.

However, the Georgian government went further than in Kyrgyzstan. It dismantled the former Soviet giant state-owned electricity company into smaller state-owned or joint-stock companies. Georgia privatized parts of the electricity sector, from small hydropower plants to larger electricity distribution centers. Despite these positive developments in Georgia, the absence or vagueness of legislation and the abuse of the privatization of state assets prevented sustainable reform. Local politicians were able to gain control of the distribution of electricity and divert electricity to 'private' sources for sale. This resulted in the absence of revenues for system upgrades.

During the third period, from 2001-2005, both states' electricity systems began to rapidly decline. Georgian society suffered from severe energy shortages, resulting in mass protests on the streets of several cities. Oddly, this was also the period of the largest foreign investment in Georgia's electricity sector. In April 2000, the American company AES acquired Telasi (the capital's electricity distribution company), two out of ten blocks of the Gardabani thermal power generation plant near Tbilisi, and the Khrami-1 and -2 hydropower plants. But, by summer 2003, AES sold its assets to Russia's United Energy Systems.

Kyrgyzstan finally broke up the state-owned vertically integrated power company Kyrgyzenergo in 2001 into generation, transmission and distribution joint stock companies. The Government stipulated that the Electric Power Stations (generation) and the National Transmission Grid were not to be privatized. Only distribution companies could be privatized, or the management could be turned over to private operators. However, as in Georgia in the previous period, the mismanagement of this process led to a critical period of power shortages in the country.

In the fourth period, beginning after 2005, their paths of development diverged, with President Saakashvili making energy security a top priority. A Prime Minister level coordination committee was created to carry out four objectives: replace and repair obsolete equipment; construct new power plants and transmission infrastructure; diversify imported resources; and, create a commercially viable economic model to attract investment.⁵ He accomplished this through an anti-

⁵ Government of Georgia. "Forging the Link, Regional Energy Reference Materials." Paper presented at the Eurasian Energy Security: Market Access & Investment Policy, Tbilisi, Georgia, June 19-21, 2006.

corruption program enforced with fines and prosecution, reducing licenses and fees for businesses,⁶ raising and graduating electricity tariffs⁷, and then privatizing all distribution companies and building new hydropower stations. As a result, Georgia became a much more attractive option for foreign investors and regional integration.

For Kyrgyzstan, levels of energy losses reached an all-time high. Activities of power companies remained non-transparent and the task of creating a coherent energy policy was unfulfilled. The Ministry of Industry, Fuel and Energy was created in February 2007 and new head, Igor Chudinov, was ordered to decrease commercial losses to 38 percent. In summer 2007, President Bakiyev fired all heads of distribution companies, presumably as an enabler in meeting this target. Nevertheless, electricity shortages were being predicted for the forthcoming winter as a result of continued mismanagement.

⁶ As a result of these and many other complementary measures, in 2006 Georgia was rated first in making itself more 'business friendly' than any other country, leaping from number 122 to 37 in the World Bank's rankings of the ease of doing business.

⁷ Up to 100 kWh pay 7 cents (per month); 100-300 kWh pay 8 cents; 301-more kWh pay 9 cents; plus VAT on billings to commercial consumers. Juxtapose this with Kyrgyz customers, who pay 1.05 cents for residential customers, 2.00 cents for major consumers, WB recommended 2.3 cents.

Table 3: Four Stages of Development in Comparison

	Georgia	Kyrgyzstan
1991-1996	Destruction and Dilapidation	Decline in Revenue but Stabilization
1997-2001	Stabilization, Regulatory and Legal Foundation, then Unbundling	Regulatory and Legal Foundation Established
2001-2005	Private Investment, then Divestment	Unbundling, Theft and Supply Decline
2005-today	Reform Management, then Privatization	Plans for Privatization

The four stages of development of the two states' electricity sectors are summed up above in Table 3. These four stages can also be discussed in terms of the role of informal networks. In Georgia and Kyrgyzstan, informal networks were present in the generation, transmission, and distribution of electricity, as well as the procurement of hydrocarbons for generation. They were particularly present during the privatization process of state-owned electricity facilities.

Before 2005 in Kyrgyzstan, the informal networks in the electricity sector were minimal, hierarchical, and comprised mostly of the elite. Because the electricity system was vertically integrated until 2001, the bureaucracy at the central and district levels was only able to participate in distribution schemes after this time. Thus, after 2001, the scope of informal network activity increased, dispersing the share of assets from the mismanagement of the system.

After the change of presidents in Kyrgyzstan, the networks flourished, drawing on more complex and multi-actor arrangements. At this point, the alternate system replaced the normal channels of state functions. There were several more centers vying for power in addition to the President, including the Government (Prime Minister and the Cabinet), Members of Parliament, and non-governmental organizations. This meant that as they gained power, they also gained access to aspects of the energy sector.

I view post-2005 Kyrgyzstan as heading towards where Georgia was before its Revolution. The networks are becoming diffused to district levels, with business groups and consumers taking advantage of the vacuum of authority. Additionally, as the central authorities contest for power, reform is stagnant, which has allowed elite based networks to thrive, particularly with partners across borders.

In Georgia, the role of informal networks was the opposite. The networks started out diffused as a result of the war. They reshaped themselves by the late 1990s, headed by the elite. However, after the unbundling of the electricity system took place in the late-1990s, informal networks took over the management companies with power to issue licenses to local distributors. As a result, the executive heads of regions were able to create their own private electricity systems, linking multiple state and non-state actors in informal networks.

In post-Revolution Georgia, however, a major shift took place in the management and financial structures of the electricity system. The center regained power and authority over the entire electricity system. As a result, many of the district based networks were debilitated and only a very few elite networks survived, particularly with regards to privatization. The four stages are summarized below in Table 4.

Table 4: Four Stages of Informal Networks in Comparison

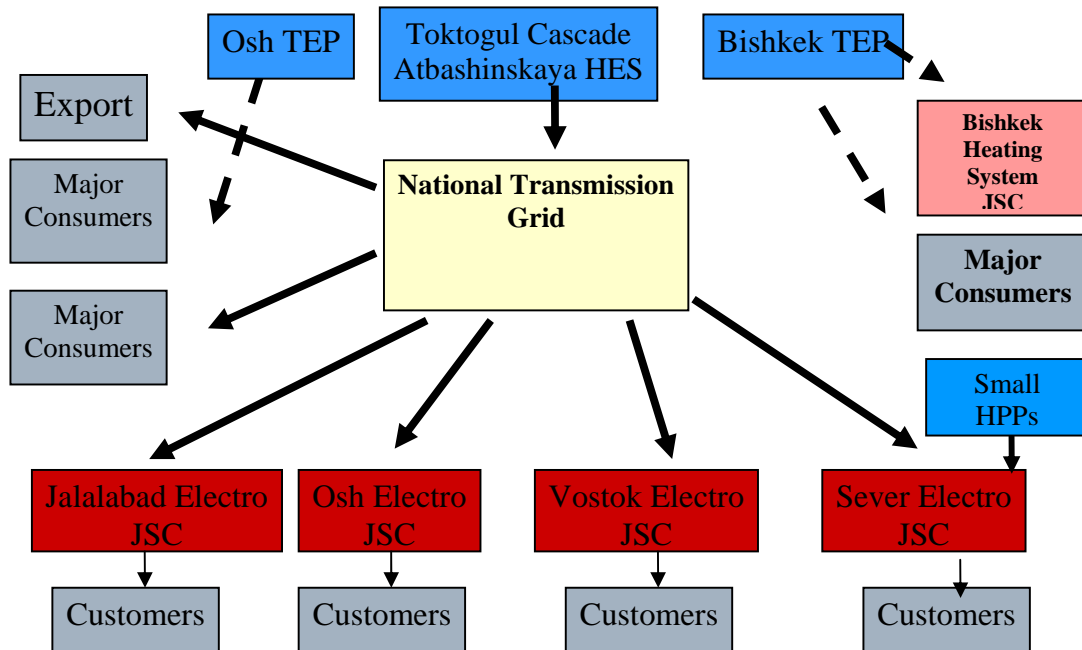
	Georgia	Kyrgyzstan
1991-1996	Decentralized criminal networks.	Soviet networks disrupted. New networks forming.
1997-2001	Multiple stakeholders establish networks. Elites most active.	Elites establish centralized networks.
2001-2005	Elite loses control. Bureaucracy and Consumers work together. Dispersion.	Elites and business groups dominate. Bureaucracy and Consumers work together.

2005-today	Gradual weakening of local networks, elites gain control.	Status quo with additional elite stakeholders.
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Schemes of Informal Socio-Economic Networks

If we start from the premise of 100 percent generation, Kyrgyzstan loses 9 percent in high voltage grad transmission. In the chart below, this means that the 3 generation facilities, which comprise the Joint Stock Company ‘Electric Power Stations’ sends 100 percent of its electricity to the National Grid. However, only 91 percent of it is then supplied to distribution companies (e.g., Jalalabad, Osh, etc.) Then, 18 percent is lost from distributors to customers due to poor technical equipment, such as meters. This leaves 73 percent from total market sales that can be billed. However, another 15 percent is lost as a result of ‘commercial losses’, which translates into ‘unbilled’ electricity to the consumers. Thus, 58 percent of generated electricity is actually transmitted, billed, and fees collected. The 42 percent losses is the equivalent of 3.5 million Kyrgyz soms per year.

Figure 1 Kyrgyz Government Owned Electricity System



Source: Sylantulova, Aigul, "State Regulation of Kyrgyzstan's Energy Sector – an evaluation of the policy," presented at a conference 'Reforming Kyrgyzstan's Electricity Sector', 16-17 September 2007. Kyrgyzstan.

Thus, losses are part of multi-level multi-actor networks at the generation, transmission, and distribution levels. There are schemes which can be classified as 'macro', meaning that they involve mostly members of the elite and their business associates and the sums of money are high. There are schemes that are 'micro', usually involving lower level employees of energy companies working together with customers. These schemes involve far less amounts of money. A few stories follow to illustrate the macro and micro schemes.

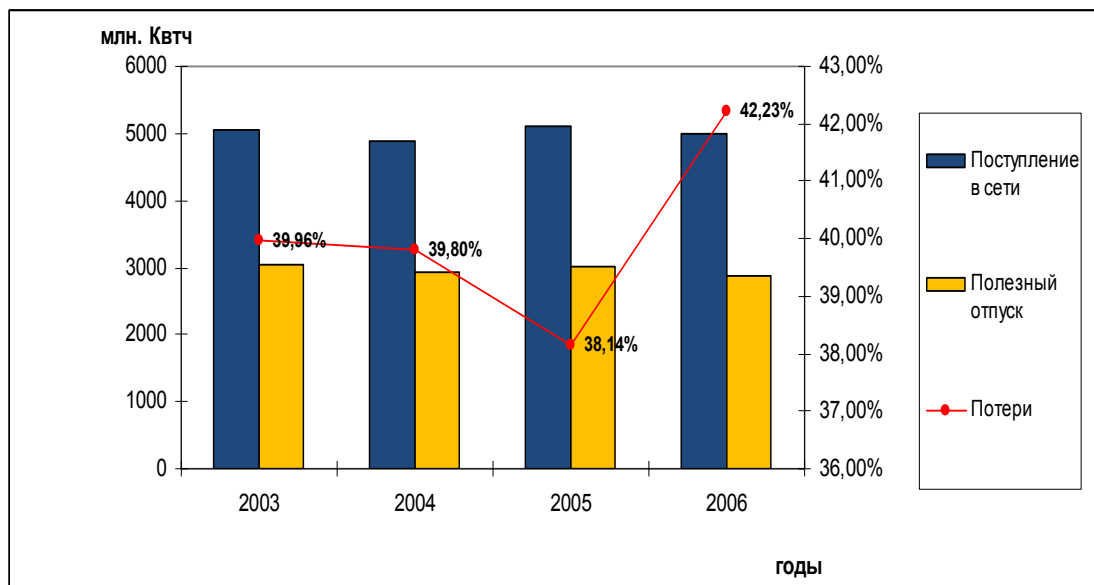
At the macro level, there are several schemes used in both Georgia and Kyrgyzstan. They include the creation of a network comprised of state procurement authorities, sellers of an energy resource, and those close to the elite acting as a private interest. Together, they create a third company for the import of hydrocarbons, selling it above market price, indebting the state, and splitting the profit. Sometimes, the state is forced to sell the state asset in a debt-for-equity swap. Another scheme is for a network of state authorities and a business group in a neighboring state, comprised of the two states' elites, to export electricity for private sale.

On the micro level, local officials in district level administrations together with local energy distribution companies join forces. Employees of energy companies are hired at the request of officials, who themselves become links for cash as intermediary. Distribution companies sometimes do not allow 'special' commercial and residential customers to be cut off despite non-payment. Commercial losses also occur as a result of tampering with meters, recording a lesser volume of electricity than consumed, and splitting the additional charge between the collector and the consumer. There are also unofficial power lines or illegal 'hook ons' to lines by customers. This tends to occur in the winter when there are shortages of electricity. Finally, new settlements, particularly those being built around the state capitals, are not metered.

My interviews indicate several stories about one distribution company in Kyrgyzstan, which demonstrates how many stakeholders are involved in a scheme. Sever Electro (SE) distributes electricity to the northern region of Kyrgyzstan bordering Kazakhstan. According to legislation in summer 2007 it is scheduled to be privatized as a pilot project. SE has suffered from high levels of

commercial and technical losses in electricity. In Table 6 below, we can see in blue the electricity sent by the National Transmission Grid (NTG) to the distribution company SE. In yellow is the electricity distributed by SE. The red line tracks losses. It is apparent that something has gone terribly wrong in just one year from 2005 to 2006, when losses jumped from 38 to 42 percent.

Table 6: Distributing Company Sever Electro



Source: Sever Electro, Kyrgyzstan

In one year SE received 24 million Kyrgyz soms worth of electricity from Chakan Hydroelectric Station (HES) for distribution to its customers (at price of 1 kWh = .24 som). However, SE could not pay for the electricity. So, SE asked Electric Power Stations (ES) to give Chakan 24 million som worth of electricity transmitted through high voltage lines owned by the National Transmission Grid.⁸ Two losses occurred; SE lost 20 million kilowatts worth of potential capacity in its lines, and SE lost the potential to sell electricity to industrial companies for .80 som through the transmission lines (a profit loss of 16 million som).

⁸ Chakan consists of 6 to 8 small hydropower stations near to Bishkek. It was privatized by former President Akayev's son. The station has been engaged in exporting electricity to Kazakhstan.

A second scheme occurred two years ago when bartering still existed. SE wrote a letter to Electric Power Stations asking for 50 million kilowatts of electricity to be passed to a private distribution company Agibal through a license, and from summer 2005 to Bishkek Energy Complex.⁹ The price of electricity was stipulated at .02 som. ES allowed the energy to be sold to big industrial customers, such as the Kant Cement Factory, for .60 som, generating a profit for the licensed distribution company of 30 million som. In reality the private company arranged a barter sale, allowing the recipient firm to pay for the electricity in allegedly 10 million soms worth of goods, such as fuel oil. In fact the goods were worth only 2 million som. In the end, 20 million soms plus 2 million soms worth of goods were split between SE and the private company.

In a third scheme, ES and SE agreed to a 5 million kilowatt transfer of electricity in one year. SE wrote a letter to ES requesting that SE give electricity to a private company. ES transmitted this electricity to the private company, but SE assumed responsibility for the receipts of payment. SE did not see the amount of actual transferred electricity. SE claimed losses for electricity at an above market price per kilowatt and paid for it 'in kind' with energy goods, such as fuel oil. These goods were actually transferred to Osh Electro and Toktogul HES.

Conclusion

The economic loss that a state incurs as a result of allowing informal networks to monopolize transactions in the energy sector is crippling.

Below cost tariffs lead to low revenue collection. Low revenue collection does not allow for infrastructure upgrades (e.g., meters, repairs, rehabilitation). Poor quality services lead to excessive energy losses. This then results in the state's inability to meet winter peak demand, which then inhibits production and degrades the quality of social services. These unqualified costs are very difficult to measure, including the decrease in intellectual development, inefficiency of hospitals and clinics to function, and the decline of technical teaching capability of schools.

⁹ These companies are owned by affiliates; Bishkek Energo Complex was set up to replace Agibal, which was a major player in the electricity distribution business during President Akayev's time and received much scrutiny for its operations.

One study on Georgia attempted to measure qualified and unqualified costs, defined as economic cost = opportunity cost losses. The study concluded that if 1kWh = 1 Georgian lari (US \$.50), then Georgia lost 132 million USD per year in potential production in the late 1990s and early 2000s. This was based on a survey of businesses that measured losses in terms of the extra expenses of purchasing alternate generators, decreased production, the increase cost of production, a decrease in competitiveness, damaged machinery, and intangible costs, such as how much was not produced as a result of lost electricity.¹⁰

At the regional level, the operation of networks between states results in lack of trust among neighbors and inefficiency in integrating a united system maximizing efficiencies. This leads to 'resource wars' between the supplier states and dependent states. For example, the annual contractual arrangements for gas between Kyrgyzstan and Uzbekistan, and between Russia and Georgia, are troublesome. They are negotiated in a non-transparent manner among elites, often much past the required date for effective enactment, and they are then left unfulfilled as a political tool in other bilateral negotiations.

As with Georgia since 2005, there are signs of potential progress in Kyrgyzstan's electricity sector. Russian and western businesses have shown interest in privatization of the Bishkek Thermoelectric Plant (TEP), the primary user of gas. China is interested in the Naryn region for coal mining and building a coal burning plant for electricity production. There are also some hopeful signs that Russia and Kazakhstan could invest in Kyrgyzstan's largest and still uncompleted hydropower facilities Kambarata 1 and 2. Moreover, Kyrgyzstan has been negotiating with Gazprom and Itera of Russia to supply natural gas from Turkmenistan via the Uzbek pipeline, as well as completing additional pipelines begun during Soviet times.

For Kyrgyzstan, however, privatization is difficult in the current climate. Burdensome licensing procedures, poor payments collections, heavy tax burdens, lack of administrative oversight, unclear legal procedures and protection, and vague tax laws and regulations discourage foreign investors. As a result, Kyrgyzstan is losing out to neighbors for lucrative energy projects, including private investment in hydropower plant upgrades to Tajikistan. Additionally, it has been

¹⁰ Lezhava, David. "Financial Costs of Energy Insecurity in Georgia." Tbilisi, Georgia: Strategic Research Center, 2006. Available at: <http://www.src.ge> (accessed 17 July 2007).

bypassed as a transit state for a pipeline from Turkmenistan to China. Should the role of informal networks lessen in the near-term, Kyrgyzstan could take advantage of international interest and significantly enhance its electricity sector.