

Electricity Reform at a Crossroads: Problems in South Korea's Power Liberalization Strategy

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1. Introduction

Electricity sector reform has become commonplace around the world, but few nations can match the extent of transformation attempted in South Korea. On December 8, 2000, two legislative initiatives provided the basis for dividing the national electricity monopoly into several companies, with the aim of privatizing them. Further, the legislation established the Korea Power Exchange and the Korea Electricity Commission to oversee the new competitive policy.¹ With their enactment, liberalization of the South Korean power sector began, aiming to achieve in nine years what the US had sought over nearly three decades.² The reform had been deftly crafted to satisfy International Monetary Fund (IMF) demands for the country to open its markets, and to simultaneously assuage fears among South Korean citizens and businesses that the changes could cause a California-style crisis. Most important, though, the nation's leaders had to convince a suspicious public that harmonization with the global rules of market-based development would actually benefit South Korea.

On June 17, 2004, the national government announced that it would halt electricity sector liberalization, no longer convinced that the country's interests would be well served.³ Below, we analyze the factors that led South Korea to embrace power sector reform and then to, at least partially, abandon

1 Sung-Bong Cho and Jin-Woo Kim, *Jeolyuk Gujo Gaepyun Banghyang-gwa Jujo Jungchaek Guwajae* [The Direction of Electricity Industry Reform and Principal Policy Tasks], research report (Euiwang, Republic of Korea: Korea Energy Economics Institute, 2000).

2 Center for Energy and Environmental Policy (CEEP), *A Review of US Restructuring Experience and Its Lessons for Korea's Electricity Industry*, research report (University of Delaware, Newark, DE: CEEP, 2003). Three authors of this article (Byrne, Wang and Yu) participated in the preparation of the 2003 report and one individual (Byrne) provided public comments before the Korea Tripartite Commission, which reviewed CEEP's report before rendering its recommendations to the president of South Korea regarding electricity liberalization (see section 5 below).

3 Rhan Kim, "Power Supply Privatization Plan Scrapped," *The Korea Times*, 17 June 2004.

it. We argue that neither the case made for reform, nor the one put forth against it, adequately addressed the full range of social and environmental concerns that dated to the country's dictatorship era. As a result, we believe that South Korea will almost certainly be forced to revisit basic social and environmental questions about its electricity regime.

2. A Legacy of Rapid Change

Economic planning of the country's postwar rapid growth has been premised on integrated corporate-state actions. South Korea's *chaebols*⁴ played (and continue to play) a key role in national economic development, in concert with the state, which—through its five-year development plans—sets national economic targets. As a consequence, few boundaries have existed between private and public sector planning. The Asian financial crisis of 1997 forced South Korea to recognize and address problems associated with the special public-private relationships that were forged during its economic ascendancy.

The problem was most evident among South Korea's major banks, but difficulties were widespread in the electricity sector as well. In fact, the state-owned electricity company had accumulated the largest debt level of any unit of government,⁵ in order to supply cheap energy in sufficient volumes to a fast-growing economy. Under pressure from the IMF, a structural adjustment programme was implemented, requiring a range of reforms to the country's financial, business and public sector institutions. The 1999 Letter of Intent and 1998 Memorandum of Economic Policies signed between the central government and the IMF stipulated the sale of shares in commercial banks held by the Bank of Korea and other governmental entities. In addition, it required actions to promote better corporate governance, liberalized investment markets, reduced ownership by *chaebols* of affiliate companies, and improved transparency of economic and financial transactions. Agreed-upon public sector reforms included privatization of state companies and a diminished governmental role in the economy. With regard to KEPCO, the government accepted the need to privatize the utility, beginning with the obligation to increase private (including foreign) holdings of the company's shares to 40 percent by the end of 1998.⁶

4 *Chaebols* are companies that were originally family owned and that, with government support, evolved into large corporate conglomerates. The GNP shares of the top four *chaebols* (Hyundai, Samsung, Daewoo and LG) and the top 30 *chaebols* were 9.2 percent and 16.2 percent, respectively, in 1993. See Kenneth L. Judd and Young-Ki Lee, eds., *An Agenda for Economic Reform in Korea: International Perspectives* (Stanford, CA: Hoover Institution Press and Seoul: Korea Development Institute, 2000).

5 See CEEP, *A Review of US Restructuring Experience*; and table 3 below.

6 Letter of Intent of the Government of the Republic Korea (1999), and Memorandum of Economic Policies (1998), signed by Chol-Hwan Chon (Bank of Korea) and Kyu-Sung Lee (Minister of Finance and Economy, Republic of Korea), available from the IMF Web site at <<http://www.imf.org/external/np/loi/mempub.asp>>, last accessed 18 October, 2004.

South Korea quickly implemented market-based reforms that would completely revise the electricity sector's ownership, planning and management. The reform drive ignited heated debate on the merits of privatization, as questions were raised about the consequences of letting market actors decide the sector's purpose and direction.⁷ Concerns also surfaced about privatization's potential for reducing employment.⁸ Advocates, on the other hand, argued that the reforms would improve operational efficiency and financial reliability.⁹ In their view, privatization of the electricity sector represents a key step in modernizing the South Korean economy and enhancing its competitiveness in the global market.

3. Growing Contradictions: South Korea's Electricity Sector from 1960 to the Present

The electricity sector has played a pivotal role in shaping South Korea's political economy from the Cold War era to the present. Three distinct phases can be identified that culminate in what we characterize as 'synergistic development'—a process of reinforcing growth between the electricity sector and the industrial economy. They are: the 1960 to 1980 period of rapid expansion; the 1980s and 1990s, when the 'synergistic development' model matured and, simultaneously, challenges to state monopoly emerged; and the period after the 1997 financial crisis, when restructuring became official policy and led to a rethinking of the sector's core purposes.

3.1 Rapid Industrialization and the Rise of KEPCO (1960-80)

South Korea emerged from the Korean War (1950-53) with several conditions that were to shape its future: a determination to escape the poverty that marked its prewar colonial status and the devastation wrought by civil war; a commitment to rapid, export-led economic growth jointly planned by government and business leaders; and government by military dictatorship. To these social, economic and political factors was added a natural resource constraint: South Korea possesses little fossil fuel of its own.¹⁰ This constraint

7 Yoon Ja Kim, "Hankuk Jeolyuk Minyoungghwa Nonie Daehan Bipanjuk Gumto" [A Critical Analysis of the Privatization of KEPCO], paper presented to the symposium hosted by the Korean Federation of Environmental Movements and the Environmental Forum of the Korean National Assembly, Seoul, 12 November 1999.

8 "Hanjun Minyoungghwa Bangan Jaengjumun?" [What are the Issues Regarding Privatization of KEPCO?], *Hankyoreh*, 23 November 2000.

9 Cho and Kim, "The Direction of Electricity Industry Reform"; Chang Hyun Cho, "Jeolyuk Sanup Gujo Gaepyungghwa Minyoungghwa: Jaengjum Bunsukghwa Sarye Yungu" [Electricity Industry Restructuring and Privatization: Analysis of Issues and Case Study], report, Korea Institute for Industrial Economics and Trade (assisted by staff of the Ministry of Commerce, Industry and Energy), 2002.

10 South Korea has modest reserves of medium-quality anthracite coal (82 million tons as of 1998). Due to the high cost of production, 384 mines were closed between 1989 and 1995. Coal needs for electricity generation are met through imports, principally from China and Australia. See

has greatly influenced not only national government energy policy but foreign relations as well.

The bedrock of South Korea's plan for industrial growth since the Korea War was the energy sector, particularly electricity. A single national electricity authority was established in 1961, vested in a state-owned and -operated monopoly—the Korea Electric Power Corporation (KEPCO). This state company was granted broad powers. Not only was it responsible for generation, transmission and distribution, but also for planning, construction and financing of national electricity needs. Highest priority was given to supplying power to large industrial facilities that were oriented towards export growth. Through aggressive national policies for infrastructure investment and industrial development, the shift from an agrarian economy to an industrial economy was rapid.¹¹ South Korea's spectacular economic growth was in part based on a formula of doubling electricity capacity every ten years. By the 1990s, electricity capacity was doubling in only eight years (see figure 1).

But the sector provided more than electricity to the fledgling industrial economy. The earliest and largest modernization projects in postwar South Korea were power plants. Large domestic conglomerates were selected to construct, engineer and manage huge coal, oil and nuclear plant projects.¹² The *chaebols* were also charged with achieving technology indigenization in the electricity sector during the 1960s and 1970s.¹³ Hyundai and Daewoo, in particular, were given governmental support to acquire knowledge about new power plant engineering techniques through collaborative agreements with foreign (mostly US) companies. As a result of this arrangement, South Korea's *chaebols* were able to greatly expand the scale and interests of their businesses. Close state-*chaebol* collaboration in the electricity sector was a feature subsequently replicated throughout the national economy, becoming a key factor in the country's rapid industrialization.¹⁴

International Energy Agency, *Energy Policies of IEA Countries: The Republic of Korea 2002 Review* (Paris: IEA, 2002).

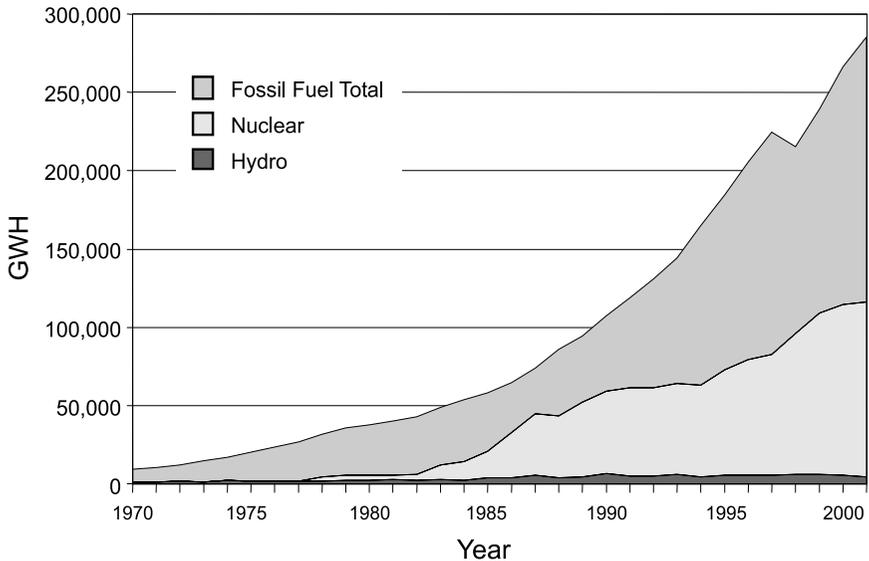
11 While the share of GDP from heavy and chemical industry increased from 26.3 percent to 64.9 percent between 1961 and 1991, the share from agriculture, forestry and fisheries decreased from 39.1 percent to 8.1 percent (Terry Ursacki and Ilan Vertinsky, "Long-Term Changes in Korea's International Trade and Investment," *Pacific Affairs*, vol. 67, no. 3 (1994), pp. 385-409). Over 45 percent of South Korean households relied on agriculture and fisheries for their income in 1970, but the share had fallen to less than 10 percent by 2000 (Korea National Statistical Office, "Census Population," "Farmhouse and Population," and "Fisheries Households and Population," online databases maintained by the South Korean government, and available online from <<http://www.nso.go.kr>>, last accessed 18 January 2004).

12 Between 1960 and 1987, South Korea built 20.6 GW of new generation capacity (14.8 GW of which were fossil fuel plants and 5.8 GW which were nuclear plants). See Korea Electric Power Corporation, *Statistics of Electric Power in Korea* (Seoul: KEPCO, 2003).

13 John Byrne and Jong-dall Kim, "Centralization, Technicization and Development on the Semi-Periphery: A Study of South Korea's Commitment to Nuclear Power," *Bulletin of Science, Technology and Society*, vol. 10, no. 4 (1990), pp. 212-222.

14 Byrne and Kim, "Centralization, Technicization and Development on the Semi-Periphery."

Figure 1. Generation by Fuel Sources, 1970-2001



Source: Korea Energy Economics Institute, 2003, data available online at <<http://www.keei.re.kr/index.html>>, last accessed 18 October 2004.

National defense and economic development strategies were intertwined under the military government. The rise of South Korea's nuclear power industry reflected this fact, with the technology heralded as an essential ingredient in the country's pursuit of a modern economy and national security in a volatile part of the world. Several attributes made it attractive to the military government, including opportunities that it would afford to acquire nuclear weapons.¹⁵ Nuclear power also offered a means to resolve the strategic and economic vulnerabilities of a country otherwise dependent on imported fossil fuels. Although fissionable material would have to be imported, it could be obtained from reliable Cold War allies.

Expansion of the electricity sector was greatly facilitated by the adoption of nuclear power. It answered the regime's fast-growth economic imperative with the promise of ample supplies. Large nuclear facilities met the growth goals of the country by generating electricity at low prices (approximately US\$0.03 per kilowatt-hour [kWh] in the 1980s).¹⁶ The increasing availability

15 John Byrne and In-Whan Jung, "The Politics of Nuclear Development in South Korea," proceedings of the Seventh Annual Meeting of the National Association for Science, Technology and Society (Alexandria, VA: 1992), pp. 132-152.

16 KEPCO officials that we contacted confirmed that cost had been won 25-30/kWh (US\$0.03/kWh) on average during this period.

of electricity capacity facilitated rapid industrialization. From 1960 to 1980, annual growth in electricity consumption exceeded growth in both GDP and total energy consumption (see table 1).¹⁷

Table 1

Comparative Evolution of GDP, Energy and Power Consumption, 1960-80

Indicator	Annual growth rate (%)
Real GDP	8.6
Total energy consumption	7.7
Electric power sold	19.1

Source: Yoon Hyung Kim, Kirk R. Smith and Kennon Breazle, eds., *Electricity in Economic Development: The Experience of Northeast Asia* (New York: Greenwood Press, 1987).

Throughout this era, environmental movements were suppressed by the military dictatorship. The Park Chung-Hee regime placed a high priority on rapid economic growth, and voicing environmental concerns was regarded as anti-governmental activity. As a result, despite a number of serious pollution incidents during this period, the environmental movement was restricted to local demonstrations and petitioning for damage compensation.¹⁸

3.2 Signs of Progress and Trouble (1980-97)

South Korea’s electricity market was designed by the government based on Long-Term Power Development Plans that were issued every two years. Plans included demand projections, investment targets and construction schedules for new facilities. The planning process was centralized and top-down, with the intention of providing significant discretion to KEPCO’s managers. In particular, the planning regime encouraged KEPCO to over-build capacity and to invest in long-lived construction programmes (especially nuclear power plants). This approach led to highly variable reserve margins (as shown in table 2).

Table 2. Electricity Reserve Margins

	1966-67	1972-73	1975-76	1986-87	1994
Reserve margin (%)	1	50	5	55	3

Source: Cho and Kim, “The Direction of Electricity Industry Reform.”

The national subsidy system also involved favourable pricing and purchasing policies across different segments of the energy supply sector.

17 Yoon Hyung Kim, Kirk R. Smith and Kennon Breazle, eds., *Electricity in Economic Development: The Experience of Northeast Asia* (New York: Greenwood Press, 1987), p. 7.

18 Do Wan Ku, *Hankuk Hwankyung Undongui Sahweihak* [A Sociology of the Environmental Movement in Korea: Toward a Just and Sustainable Society] (Seoul: Munhakgwa Jisungsa, 1996).

For example, KEPCO was obliged to buy a minimum annual volume of natural gas under “take-or-pay” agreements with the Korea Gas Corporation (KOGAS). Due to seasonal variation in LNG demand, high-cost storage facilities were needed, which meant that gas-fired generation in South Korea was expensive. As a result, many believe that the share of power production from natural gas rose during this period above what would be economically warranted. The government also obliged KEPCO to purchase domestic anthracite coal, which was more expensive than imported bituminous coal from China and Australia, in order to support the domestic coal industry. As well, KEPCO subsidized district heating, hydropower and nuclear power development as part of the national energy supply plan.¹⁹

Yet, troubling signs emerged. To pay for the new plants and fuel subsidies to local vendors, KEPCO accumulated high levels of debt; the “cheap energy” regime it fostered led to an energy-intensive industrial structure; and its increasing reliance on nuclear power fuelled civil dissent. This put KEPCO in an unwelcome spotlight: it had literally powered an Asian economic miracle, but now the state-owned company came under greater scrutiny as several adverse consequences of its success appeared.

A series of policy initiatives in the 1980s to slow electricity demand growth exemplify how KEPCO was being forced to change as a result of its accomplishments. The twin problems of higher-cost fuels (following the 1970s oil crises) and a global recession that cut export growth served as the immediate causes of a change in policy direction by the government. With the formation of the state-owned Korea Energy Management Corporation in 1980, government planners sought to curb South Korea's energy intensity, which had grown to among the highest in the world.²⁰ Industrial energy conservation was encouraged with tax credits for high-efficiency technology conversions. Additional conservation strategies, such as demand-side management (DSM), were emphasized in this period. KEPCO added DSM for the first time to its 1993 Long-Term Power Development Plan (LTPDP).²¹ While providing a useful foundation for action, the overall effect of KEMCO and national DSM policies on national energy consumption and efficiency would be modest. As a result, South Korea still sports an energy intensity rate that is high for the Asia Pacific region.²²

19 Cho and Kim, “The Direction of Electricity Industry Reform,” p. 21; Organization for Economic Co-operation and Development, *Regulatory Reform in Korea* (Paris: OECD, 2000), p. 246.

20 Insook Han, “The Political Economy of Unsustainability: An Analysis of South Korea's Energy, Environmental, and Development Vulnerability,” (doctoral thesis, Center for Energy and Environmental Policy, University of Delaware, 1993). Energy intensity measures the energy consumption per unit of economic activity.

21 CEEP, *A Review of US Restructuring Experience*.

22 Energy Information Administration, “South Korea: Environmental Issues,” country analysis brief (US Department of Energy, April 2003), available online from <<http://www.eia.doe.gov/emeu/cabs/skoren.html>>, last accessed 18 October 2004.

Pressure to modify KEPCO's centralized and monopolistic management strategy mounted throughout the early 1990s. The natural monopoly rationale used by KEPCO to justify its capacity focus was attacked by a seminal study in 1993 that found the Korean electricity industry to be over-built, and concluded that economies of scale had actually become *negative*.²³ In 1995, the First Basic Plan for Independent Power Projects was issued and the allowable power supply from IPPs was substantially increased in the 1995 LTPDP.²⁴ According to the 1995 LTPDP, over 50 percent of the planned new fossil fuel plants were to be built by the private sector by 2010. The electricity generated from independent power producers, however, was to be sold exclusively to KEPCO under power purchase agreements.

With South Korea's 1992 election of its first civilian president, the economic and political setting of KEPCO changed substantially. Long-suppressed environmental and social concerns could now be vigorously put forth by activists, especially questions over nuclear power and the social unaccountability of KEPCO. In 1997, the Asian currency collapse claimed South Korea as one of its victims, dramatically devaluing the won and sending foreign debt spiralling upward. In 18 months, South Korea's purchasing power for imported goods was cut in half and the national economy fell into crisis. It quickly became obvious to South Korean and foreign observers that any programme of crisis management was going to take aim at KEPCO.

3.3 Persistent Crises (1998-Present)

The country's financial vulnerabilities were exposed in 1998, when South Korea was obliged to seek assistance from the IMF. But the accompanying structural adjustment requirements posed additional difficulties of their own. In a relatively short span of years, South Korea had undergone the transition from an insular economy guided by a military dictatorship to a democracy with a more open market system. Now, the nation was required to redesign its economic institutions still again, this time according to the demands of international investors as economic globalization took hold of the country.

The newly elected coalition of liberal and conservative political parties found itself under international pressure to implement a far-reaching programme of economic and administrative changes that would transform many of the established features of South Korean economic and political life. The banking sector was required to shed its close ties with government planners and the *chaebols* were suddenly under pressure to repay long-outstanding loans and to compete for new funds. The government was forced

23 Tae Yong Jung and Yang Hoon Sonn, "Factor Demand and Economies of Scale for the Electric Industry in Korea," paper presented at the 16th Annual Conference of the International Association for Energy Economics, Denpasar, Bali, Indonesia, 1993; Tae Yong Jung and Yang Hoon Sonn, "Scale Economies in Electric Utilities," *Journal of Korea Economics*, vol. 42 (1993), pp. 29-47.

24 Cho and Kim, "The Direction of Electricity Industry Reform."

to sell off state assets in a sweeping programme of privatization. Major emphasis was placed on enhancing flexibility in labour markets and on stimulating competition. Government “safety nets” were abandoned, trade barriers were reduced and foreign direct investment was courted in historically state-protected sectors, including electricity. Beginning in April 1998, one-half of the then existing 11,125 economic regulations were eliminated.²⁵

The government launched a privatization programme that swiftly and dramatically reduced government involvement in the economy. Five of the 11 largest state-owned enterprises were privatized and one was liquidated by the end of 2000. Of the 108 state-owned companies in 1998, only 61 remained in 2000.²⁶ As hoped, foreign investment in South Korea returned, and indeed grew quickly, from less than US\$2 billion in 1995 to US\$15.7 billion in 2000. The OECD has concluded that most of this growth is directly traceable to sales of major state assets to foreign investors.²⁷

Electricity sector reform was a high priority for the national government and the international financial agencies for several reasons. Economically, KEPCO's indebtedness comprised a stunning portion of public sector foreign debt (see table 3).²⁸ Indeed, KEPCO was the single largest state-owned source of international debt. With the South Korean won's value on foreign currency markets cut in half, this represented an enormous problem for the country. National economic recovery necessarily entailed resolving KEPCO's financial problems. Furthermore, the new economic policy required that the electricity

*Table 3. KEPCO's Foreign Liabilities
Compared to Government Foreign-held Debt (billion US\$)*

	1995	1998	2000	2003
Government foreign liabilities	6.6	15.9	19.2	14.8
KEPCO foreign liabilities	3.1	6.6	7.0	4.7
Comparison (%)	47	42	36	32

Sources: Data from KEPCO, *Gyungyung Tong-gae* [Management Statistics] (Seoul: KEPCO, 2000 and 2004); and data from the Web site of the Ministry of Finance and Economy of South Korea, available online from <www.mofe.go.kr>, site last accessed 16 August 2004.

Note: Government foreign liabilities include those accrued by the central and local governments of South Korea (it does not include foreign debt of state-owned companies). The figure for 2003 is for the third quarter.

25 Organization for Economic Co-operation and Development (OECD), *OECD Economic Surveys 2000-2001: Korea* (Paris: OECD, 2001), p. 163.

26 OECD, *OECD Economic Surveys 2000-2001: Korea*, p. 175.

27 OECD, *OECD Economic Surveys 2000-2001: Korea*, p. 175.

28 Total foreign debt for all state-owned companies was not available for the period reported in table 3. A reasonable proxy for the impact of foreign debt generated by KEPCO on public sector foreign-held liabilities is to compare it with the foreign debt owed by central and local governments. This is reported in table 3.

sector be made compatible with reforms to the overall economy, due to its significant influence on national development. Finally, reforming KEPCO entailed political decisions of great public prominence, endowing the government's package of reforms with symbolic meaning for South Koreans and for the international community.

4. Humbling the Giant: An Analysis of South Korea's Market-based Reforms

Efforts at internal sector reform in the early to mid-1990s involved no major changes to the roles or prominence of the national government and the *chaebols*. But with South Korea's acceptance of the IMF structural adjustment programme, the political dynamics for all actors changed considerably.

Foreign influence grew stronger and more diverse. Whereas US pressure was (and remains) pervasive, South Korean policy since 1998 has been additionally shaped by international finance institutions and multinational corporations pursuing large-scale investments in the new, more open economy. In the wake of the recovery programmes of the World Bank and the IMF, and national policies promoting market reforms, South Korea's destiny is being significantly affected by international actors.²⁹ Although this is hardly a new experience for South Korea, global pressures now challenge the core elements of political economy that have been essential to the country's miracle climb.

4.1 New Policy and Planning Rationale

With South Korea's economy operating under a set of directives from international finance agencies and banking institutions, the rationale of economic planning and policy has been revised considerably. The state-dominant market model was to be replaced with an open market approach. The country's electricity reforms were to mirror this change in rationale. Improvement in overall economic welfare remained the stated aim of national policy for the sector, but its achievement would now depend on treating electricity as a commodity in need of market allocation.³⁰ The ideal of 'synergistic development' was replaced by the neoliberal prescription of 'harmonized development,' in which economic success is premised on

29 Liberalization of the power sector in developing countries has generally conformed with the broader re-orientation of the national economy following an economic crisis. Sweeping changes to monetary policy, revised limits on foreign ownership, increased foreign access to capital markets, significantly changed trade, fiscal and labour policies and restructuring of national utilities (including electricity) often follow an economic emergency in order to obtain World Bank or IMF support. See John Byrne and Yu-Mi Mun, "Rethinking Reform in the Electricity Sector: Power Liberalisation or Energy Transformation?" in Njeri Wamukonya, ed., *Electricity Reform: Social and Environmental Challenges* (Roskilde, Denmark: UNEP-Risoe Center, 2003).

30 Byrne and Mun, "Rethinking Reform in the Electricity Sector."

national institutions 'opening' a society and its economy to global forces and practices.

Two distinctive assumptions underpinned this new policy direction. First, market competition was assumed to drive electricity prices toward the global marginal cost of production and thereby raise long-term productivity of economic operations. Second, the private sector was perceived to be more efficient than the public sector in matters involving resource allocation.³¹ While it is undeniable that the country came to this policy paradigm under IMF pressure,³² market ideology delimited official decisions regarding this sector. As a result, the electricity reform process attempted to ignore social and environmental problems or defined their best solutions as emanating from market operations.

4.2 Institutional Reform

Under the reform programme adopted in 2000, institutional structures that supported KEPCO as a monopoly were to be replaced by private corporations and the creation of new governance and market bodies (summarized in table 4). Vertical and horizontal unbundling and mandatory divestiture of KEPCO was emphasized in the restructuring process, because

Table 4. Institutional Characteristics of the Electricity Sector Before and After the Legislative Measures for Restructuring Electricity Supply

Sector elements	Former institutional arrangements: state monopoly (pre-2000)	Reformed institutional arrangements, planned and pursued until June 17, 2004
Generation (non-nuclear)	KEPCO	Five private corporations
Generation (nuclear)	KEPCO	State monopoly (KEPCO)
Transmission & system operation	KEPCO	KEPCO
Distribution	KEPCO	Corporate ownership
System regulation	MOCIE committee and KEPCO	Independent commission (KOREC) under MOCIE
Wholesale market operation	KEPCO	KPX
Planning	KEPCO and MOCIE	Multiple public and private

Note: MOCIE is the Ministry of Commerce, Industry and Energy, KOREC is the Korea Electricity Commission, and KPX is the Korea Power Exchange.

31 Byrne and Mun, "Rethinking Reform in the Electricity Sector," p. 52.

32 See Letter of Intent of the Government of the Republic of Korea (1999) and Memorandum of Economic Policies (1998), signed by Chol-Hwan Chon (Bank of Korea) and Kyu-Sung Lee (Minister of Finance and Economy, Republic of Korea); available from the IMF Web site at <<http://www.imf.org/external/np/loi/mempub.asp>>, site last accessed 18 October 2004.

it was believed to be the only way to attract new investment.³³ KEPCO's non-nuclear generation was divided into five generating subsidiaries in 2001, and each was to be privatized in 2002. Distribution subsidiaries were also slated for eventual privatization.³⁴

According to the government's plan, once the generation and distribution sectors were separated from KEPCO, choice among suppliers could be allowed in the wholesale market and, ultimately, the retail market would grant consumers the right to choose their providers (planned for 2009). Given that the country's electricity sector had little experience in managing a power pool with multiple market players, the rapid introduction of both wholesale and retail electricity markets was one of the bolder features of South Korea's electricity sector reform.

These institutional reforms did not explicitly address the social and environmental issues raised by civil society. Pre-existing issues, such as high pollution levels, low energy efficiency, heavy reliance on nuclear fuels and job security were pushed aside, as indebtedness, economic revival and harmonization of South Korea's policies with economic globalization held sway.

4.3 Reform in Motion

The first phase of South Korea's electricity reform was the introduction of competition in electricity generation by 2002. KEPCO's generation assets were divided into six subsidiaries (GenCos) in order to spur generation competition (see table 5). The six subsidiaries, excluding the one nuclear-

Table 5. KEPCO Generating Subsidiaries

Indicators	KOSEPCO	KOMIPO	KOWEPCO	KOSPO	KEWESPO	KHNP
Operating capacity (MW)	6,100	6,138	6,346	4,910	5,800	14,252
Under construction (MW)	1,600	1,600	1,600	2,800	1,700	4,000
Capacity (MW)	7,700	7,738	7,946	7,710	7,500	18,252
Number of plants	7	7	8	8	8	18

Source: Organization for Economic Co-operation and Development (OECD)/International Energy Agency (IEA), *Energy Policies of IEA Countries: The Republic of Korea 2002 Review, 2002* (Paris: OECD/IEA, 2002).

Note: Korea South-East Power Co. Ltd (KOSEPCO), Korea Midland Power Co. Ltd. (KOMIPO), Korea Western Power Co. Ltd. (KOWEPCO), Korea Southern Power Co. Ltd. (KOSPO), Korea East-West Power Co. Ltd. (KEWESPO), Korea Hydro and Nuclear Power Co. Ltd. (KHNP).

³³ CEEP, *A Review of US Restructuring Experience*.

³⁴ OECD, *OECD Economic Surveys 2000-2001: Korea*.

hydro subsidiary (KHNP), are of similar size and mix in terms of generating facilities.³⁵ There was a plan to privatize the fossil fuel-fired GenCos, but South Korea's nuclear and hydro monopoly (KHNP) was slated to remain a public firm. Transmission and distribution functions were also to be retained by KEPCO throughout the first phase of reform.

The generation market is currently a one-way bidding system managed by a power pool monopoly. All eligible power suppliers (including the six GenCos and IPPs with generation facilities above 20 megawatts [MW]) are required to sell their electricity through the centralized pool market, which is organized and operated by the Korea Power Exchange (KPX). KEPCO is virtually the sole buyer (except for a few eligible large industrial consumers who are allowed to make bilateral contracts with GenCos directly).

The second phase of reform was to focus on wholesale competition, starting in 2003 and continuing through 2008. Following restructuring of the generation sector (which includes selling off all subsidiaries except KHNP), the distribution network (now managed by KEPCO) was to be separated and regional distribution companies (DisCos) were to be established.³⁶ At that point, a two-way bidding pool would be introduced in which wholesale competition would ensue and DisCos would choose suppliers.³⁷ Eligible industrial consumers would have direct access to GenCos, with distribution service provided exclusively by the regional DisCos.

In this stage, the transmission network would be open to all suppliers that observed certain contractual rules, and all suppliers would pay fees from a common schedule of access charges. Central government authorities would regulate the price for distribution and transmission network utilization. As well, the price for small consumers (mainly residential and small business) who did not have choices in the early period of electricity restructuring would be set by KOREC.³⁸ Full retail competition was to begin in 2009. At that point, the distribution network would be open to all consumers and the original regional distribution franchises would be auctioned. All consumers would have the right to choose their electricity supplier.

In April 2003, however, the national government suspended the restructuring process. As discussed below (section 5), this action reflects widening concerns from several sectors of Korean society about the wisdom of unbundling and privatization.

35 Korea Power Exchange (KPX), "The Korea Power Exchange and Electricity Market," report (Seoul: KPX, 2001).

36 CEEP, *A Review of US Restructuring Experience*.

37 Korea Power Exchange (KPX), "The Korea Power Exchange and Electricity Market," report (Seoul: KPX, 2001).

38 CEEP, *A Review of US Restructuring Experience*.

4.4 Civil Society and the Reform Process

4.4.1 Anti-Nuclear Activism

Just as nuclear power served to focus environmental protest in the US, Europe and elsewhere,³⁹ South Korea's nuclear industry has attracted sustained opposition over the last 25 years. An alliance of democracy advocates and environmentalists formed to challenge pro-nuclear policies. In many respects, the opposition to nuclear power was symptomatic of broader social and political changes underway.⁴⁰ Before the advent of democracy, the nuclear industry and bureaucracy were unassailable, combining as they did the rationales of rapid economic development and national energy security. But with democratic government and the opportunity to express public opposition, this changed.

The protest in 1990 by local farmers on the island of Anmyundo, against government plans for construction of a nuclear waste storage facility there, marked the first time opponents to nuclear power could mount political campaigns for energy sector reform. Led by the Korea Anti-Pollution Movement Association (predecessor of the Korean Federation of Environmental Movements [KFEM], South Korea's largest environmental NGO), the case against nuclear power was presented. The long-standing rationale for nuclear power as a low-cost source of electricity was openly doubted.⁴¹ Instead, nuclear power was characterized as an authoritarian technology⁴² that could cost society the possibility of 'energy democracy.' Further, the ecological threats embedded in every phase of its development and use, from uranium mining to plant operations to waste burial, led environmental groups to characterize nuclear power as the country's greatest environment problem.⁴³

KEPCO's restructuring has been used by KFEM and others as an opportunity to challenge the privileged status afforded nuclear power. Economic, environmental and policy criticisms have been presented to the national government. The government's decision to retain nuclear energy facilities under the state umbrella has been criticized by environmental

39 John Byrne and Steven M. Hoffman, eds., *Governing the Atom: The Politics of Risk* (New Brunswick, NJ and London, UK: Transaction, 1996).

40 Jong-dall Kim and John Byrne, "The Asian Atom: Hard-Path Nuclearization in East Asia," in John Byrne and Steven M. Hoffman, eds., *Governing the Atom: The Politics of Risk* (New Brunswick, NJ and London, UK: Transaction, 1996).

41 Korean Federation of Environmental Movements, "Haek Baljungwa Haek Paegijangui Munjaejum, Hankukui Energy Jungchaekui Junwhan" [The Problems of Nuclear Power and Nuclear Waste Facilities and their implications for an Energy Transition in Korea], report (Seoul: KFEM, 2003).

42 Kim and Byrne, "The Asian Atom."

43 Joo Won Seo, "Hanjun-ui Jeolyuk Sanup Dogjum, Mueosi Munjaeinga?" [What Are the Problems of KEPCO Being an Electricity Industry Monopoly?], paper presented to the Seminar on Electricity Restructuring for Participation and Energy Autonomy, supported by the Korean Federation of Environmental Movements and *Hankook Ilbo*, Seoul, 7 May 1998.

groups,⁴⁴ some of whom interpret the government's unwillingness to privatize KHNP as confirming the nuclear industry's uncompetitiveness.⁴⁵ Environmentalists generally have increased their opposition to nuclear power because of the risk of accidents and the human and ecological dangers associated with waste storage. And groups concerned with protecting civil liberties have questioned the government's rationale, finding that the security requirements of nuclear facilities are incompatible with a society seeking to be free of the features of its former authoritarian governments.⁴⁶

To date, the government has been unresponsive to these criticisms of its electricity restructuring plan. However, the recently contentious debate over nuclear waste disposal⁴⁷ reminds the energy sector's managers of the festering conflict over continual development of this technology.

4.4.2 Labour and Environmental Issues

Civil society emerged in South Korea after massive protests for democracy in 1987.⁴⁸ The number of civil groups substantially increased, with environmental groups forming quickly in the late 1980s. Environmental concerns also transformed into more nationally focused issues, and the dominant ideology of anti-pollution environmentalism that contributed to the movement toward democracy changed in the 1990s, as more diverse social and environmental concerns claimed popular support.⁴⁹ For example, civil society has generally seen KEPCO's alliance with the government, technical elites and *chaebols* as a major obstacle to the pursuit of broader social as well as environmental interests. As a result, the country's NGOs have welcomed industry reform, including the break-up of the monopoly system, and some have even favoured the introduction of competitive mechanisms.

44 Kwang Hoon Seok, "Hankukui Jeolyuk Sanup Gujo Gaehyuk Banganurosoeui Minyoungwhwai Wisanggwa Janggijuk Junmang" [The Status and Long-term Prospects of Privatization of South Korea's Electricity Sector as a Restructuring Option], paper presented to the Seminar on Environmentally-friendly Electricity Restructuring, supported by Korea NGO's Energy Network and the Korea Environmental Conference, Seoul, 25 April 2002.

45 Won Young Yanglee, "Jeolyuk Sanup Gujo Gaepyeongwa Haek Baljunso, Ban Haek Undong" [Electricity Restructuring and Nuclear Power Plants, Anti-Nuclear Movements], paper presented to the Workshop on Environmentally-friendly Electricity Restructuring, sponsored by Korea NGO's Energy Network and Korea Environmental Conference, Seoul, 25 April 2002; Sung-Jin Lim, "Jeolyuk Sanupui Gujo Gaepyun Banghyang" [The Direction of Electricity Restructuring] in *Ways of Living Together*, Korean Federation of Environmental Movements magazine (February 1999).

46 Kim and Byrne, "The Asian Atom"; Pil Ryul Lee, "Jungang Jipjungjuk Energy System ui Gisuljuk Sahweijuk Uihum" [Social and Technical Risks of a Centralized Energy System], *Munwha Gwahak* 35 (1 September 2003), pp. 167-183.

47 Kwang Hoon Seok, "Hansuwon-en Odo Hagoita" [KHNP is Deceiving the Public], *Hankyoreh*, 8 October 2003; Myung Jae Song, "Buan-en Ohae Hagoita" [Buan is Misunderstood], *Hankyoreh*, 3 October 2003.

48 Su-Hoon Lee, "Transitional Politics of Korea, 1987-1992: Activation of Civil Society," *Pacific Affairs*, vol. 66, no. 3 (1993), pp. 351-367.

49 Do Wan Ku, "A Sociology of the Environmental Movement in Korea."

Organized labour has largely rejected the government's reform measures, motivated by concerns over employment security under privatization. The electricity sector is a large employer (KEPCO has nearly 35,000 workers) and it is feared that its dissolution would result in job losses and a significant shift in relations between the workforce and management. Furthermore, privatization creates the opportunity for foreign ownership, causing the union movement to claim that its interests will be disregarded. Additionally, the unions have argued that privatization of KEPCO will invariably lead to increased electricity prices.

Many environmental NGOs disagree with both the government's and the labour union's positions, claiming that continuation of the monopoly, on the one hand, and unregulated competition, on the other, are inimical to ecological values and to democratic control over the sector. For example, a well-known critic of South Korea's power policy maintains that energy conservation, improvements in efficiency and increased distribution of supply remain unlikely in monopolized *and* unregulated systems. Instead, decentralized and local ownership are argued to be essential to fulfill an environmental and equity-sensitive reform agenda.⁵⁰ Moreover, while labour unions are opposed to unbundling of generation and distribution, environmental groups seek institutional reforms that will promote democratic control and, in this respect, are willing to explore unbundling.

While some have speculated about a so-called "red-green" alliance between labour and environmentalists on this issue,⁵¹ so far there is little evidence of agreement among the parties. Efforts to improve mutual understanding have been taken, as indicated by a March 2002 forum held to resolve differences between the two groups and to foster greater mutual cooperation with regard

50 Pil Ryul Lee, "Saengtae Juiwa Jeolyuk Sanup Gujo" [Ecology and Electricity Restructuring], paper presented to the Seminar on Environmentally-friendly Electricity Restructuring, supported by Korea NGO's Energy Network and the Korea Environmental Conference, Seoul, 25 April 2002; Pil Ryul Lee, "Hankuk Jeolyuk Gujo Gaepyun: Jaesaeng Ganung Energy-ae Gichohan Energy System Junwhanul Uihae" [Restructuring of KEPCO: Toward an Energy Transition Based on Renewable Energy], paper presented to the Seminar on "How to Restructure KEPCO," supported by the Environmental Forum of the National Assembly and Korean Federation of Environmental Movements Seoul, 12 November 1999; Pil Ryul Lee, "Hanjunui Jeolyuk Dokjum Munjaewa Jeolyuk Sanup Jaepyunui Gibon Wonchik" [The Problem of KEPCO's Monopoly and Basic Principles for Electricity Restructuring], paper presented to the Seminar on "Electricity Restructuring for Participation and Energy Autonomy," supported by the Korean Federation of Environmental Movements and Hankook Ilbo, Seoul, 7 May 1998.

51 Korean Federation of Environmental Movement, Green Korea, Korea Women's Associations United, People's Solidarity for Participatory Democracy, Korea Confederation of Trade Unions, Union of Power Generation Industry, "Jeolyuk Sanup Minyoung-hwa Yubowa Chin Hwankyungjukin Jeolyuk Sanup Gujo Gaehyukul Chokguhanun Simin, Nodong Danchae Gongdong Sunun" [Joint Statement Supporting for Halt to Electricity Privatization and a Call for Environmentally-friendly Electricity Restructuring], 2002. The joint statement was released at a press conference on 27 March 2002 in Seoul. It was reported by *Hankyoreh* (27 March 2002) and *Kyunghyang* (27 March 2002). The full statement is available at the Korean Federation of Environmental Movements Web site, at <<http://www.kfem.or.kr/>>, site last accessed 28 October 2004.

to electricity restructuring. These discussions resulted in a joint statement calling for a halt to privatization and an investigation into environmentally friendly electricity restructuring alternatives. In addition, the Korea Energy Network (an umbrella organization of NGOs interested in energy issues) and the Korea Confederation of Trade Unions cooperated in the organization of a Workshop on Social and Environmental Issues in Electricity Restructuring, held in April 2002.⁵² But so far, labour, environmental and social groups agree on only one point: all reject the government's approach to electricity restructuring.

Under the Kyoto Protocol for greenhouse gas emissions, South Korea is not required to reach an emissions reduction target. However, environmentalists are concerned that South Korea's commitment to a conventional fossil fuel development path will result in escalating emissions, and are especially worried that a privatized electricity market may exacerbate the issue.⁵³ At this time, although the national government expresses concerns about global warming, South Korea may be more interested in a possible entrepreneurial role of profitably buying and selling carbon credits on an international market, rather than reducing its domestic emissions.⁵⁴ Environmentalists have challenged official rhetoric by contrasting the promise to curb greenhouse gas emissions with the government's steadfast commitment to conventional energy development.

While renewable energy sources are a logical means by which the energy sector could greatly reduce its environmental and social costs,⁵⁵ under the reform plan the government remains committed to a nuclear and fossil fuel future for the electricity sector. By implication, the IMF directives are an

52 Interviews with NGO leaders and union representatives indicate that efforts to forge an alliance have stalled. Environmentalists' opposition to nuclear power and unions' support for it, disagreements regarding KEPCO's continuation as a national monopoly, and the lack of a prior track record of cooperation on policy issues are cited as important barriers to the formation of a red-green alliance at this time.

53 Sung-Jin Lim, "Jeolyuk Sanupui Gujo Gaepyun Banghyang" [The Direction of Electricity Restructuring], *Ways of Living Together*, Korean Federation of Environmental Movements magazine (February 1999).

54 Byong-Hun Ahn and Yong-Gun Kim, "Tradable Tagged Permit System for Global Pollution Control," *Journal of Policy Modeling*, vol. 23, issue 5 (2001), pp. 569-594. Under the conditions of the UN Framework Convention on Climate Change, South Korea does not have a greenhouse gas emission reduction target, although it is now an OECD member. South Korea may engage, however, in certain forms of 'carbon trading' as a 'non-Annex I' nation with other nations under the Framework Convention.

55 NGOs in South Korea favour a dramatic increase in the development and use of renewables. For example, see Pil Ryul Lee, "Hankuk Jeolyuk Gujo Gaepyun: Jaesaeng Ganung Energy-ae Gichohan Energy System Junwhanul Uihae" [Restructuring of KEPCO: Toward an Energy Transition Based on Renewable Energy], paper presented to the Seminar on "How to Restructure KEPCO," supported by the Environmental Forum of the National Assembly and Korean Federation of Environmental Movements, Seoul, 12 November 1999; Pil Ryul Lee, "Energy System Junwhanul Uihae Jeolyuk Sanup Gujo Gaepyun" [Electricity Restructuring for Energy Transformation], *Ways of Living Together*, Korean Federation of Environmental Movements magazine (January 2000).

endorsement of the conventional energy path. Historical state support for infrastructure development on behalf of conventional fuels (ranging from tax-supported pipelines and docking terminals to subsidized financing for power plant and transmission facility investments, and the failure to have social and environmental costs of conventional fuel use reflected in energy prices) has institutionalized distortions in the South Korean energy market and work against the further introduction of renewable energy. Market liberalization of the electricity sector has proven inimical to increasing renewable energy use in the absence of countervailing policy initiatives. Such distortions are extended under the reform process, including the government's decision to guarantee the contribution of nuclear energy and its decisions regarding energy prices. Costs imposed by the nuclear and fossil fuel energy systems on the environment and society (such as health impacts) are not reflected in energy prices. Research and development focused on renewable energy, energy conservation and energy efficiency improvements is modest, reflecting a historical preference for conventional electricity sector development. As a result, institutional interest in renewable energy, energy conservation, improved efficiency and reduction of the sector's environmental and social costs remains low.

NGOs have questioned the government's advocacy of a market-determined energy mix. Instead, many call for the country to enact an aggressive renewable energy portfolio standard⁵⁶ and incentive pricing to spur rapid development of solar, wind and other non-conventional sources. Likewise, many have championed a greater national commitment to energy conservation and improved energy efficiency.⁵⁷

5. The Inertia of Reform

During its formulation and initial implementation, government leaders showed few signs of interest in the challenges mounted against the electricity

56 South Korea recently established a national plan, calling for "new and renewable energy" to account for 5 percent of the primary energy in 2011. However, it includes incineration and large dams, which are projected to account for 56.5 percent and 9.1 percent respectively of the fuel mix in 2011. See In-Young Lee, "Jung Janggi Shin Jaesaeng Energy Gibon Gaehwik (2003~2012)" [The Mid and Long-term Basic Plan for New and Renewable Energy (2003-2012)], paper presented to the Workshop on National Renewable Energy Strategies in Response to the WSSD, hosted by the Korea Energy Economics Institute and sponsored by the South Korea Ministry of Commerce, Industry and Energy, Seoul, 16 January 2004; Ministry of Commerce, Industry and Energy, *Jae E-cha Shim, Jaesaeng Energy Gisul Mit Eyang, Bogeup Gaehwik (2003~2012)* [The 2nd Basic Plan for Development, Use and Dissemination of New and Renewable Energy (2003-2012)] (Seoul: Government of South Korea, 2003).

57 John Byrne, Young-Doo Wang, Jong-Dall Kim, Hoesung Lee and Jung-Wk Kim, *Energy Revolution: 21st Century Energy and Environmental Strategy* (Seoul: Maeil Kyungjae, 2004). The volume estimates that there are sufficient cost-effective energy efficiency upgrades available in South Korea to cancel the need for government-planned nuclear power capacity additions of 11 GW by 2015 and 17.3 GW through 2020. The proposed "JISEEF I" strategy would also cut CO2 emissions by nearly 25 percent below the level forecasted by the government's plan.

restructuring plan. A serious review was initiated only after a national congressman's call for investigations into efforts of the Ministry of Commerce, Industry and Energy to change the recommendations of a report suggesting that South Korea should slow its reform process.⁵⁸ The report noted that power sector reform worldwide had produced uneven results and had not resolved concerns about social and environmental impacts. National Assembly debate rekindled the electricity restructuring issue, but with a focus largely on price and employment impacts.

As a practical and political response, the government created a special committee under the auspices of the Korea Tripartite Commission (KTC)⁵⁹ to evaluate the reform plan, and in August 2003, the committee in turn agreed to establish a joint research team⁶⁰ to examine unbundling and privatization of the distribution sector⁶¹ and other issues.⁶² The Special Committee recommended on June 17, 2004 that there should be a suspension of the planned break-up and sale of the electricity distribution system in light of mixed international experiences, and called for a reconsideration of the liberalization initiative as a whole.⁶³ On the same day, the government announced a halt to further privatization.

5.1 Economic Contradictions

Several critics have suggested that weaknesses in the privatization programme would eventually preempt the economic gains sought by the government.⁶⁴ Two general issues have been identified: first, prices under an open market might actually increase; and second, the government's plan to expand nuclear power would in fact stymie basic economic reform of the sector.

58 Soon-Bin Park, "Hanjun Bunhal, Minyounghwa Baramjik Anhae" [Unbundling and Privatization of KEPCO is not Supported], *Hankyoreh*, 21 April 2003. The newspaper article describes efforts by present and former officials of South Korea's Ministry of Commerce, Industry and Energy to press the authors of the CEEP 2003 report (*A Review of US Restructuring Experience*) for changes to their recommendations.

59 The Korea Tripartite Commission was established in 1998 as a consultative body to South Korea's president. It includes representatives of government, business and labour, who meet to discuss comprehensive labour policy, including employment security, conditions of workers and public sector restructuring.

60 This research team consists of eight members: one labour union representative, one business representative, two experts recommended by the union and business sectors, and two neutral researchers recommended by the chair of the Special Committee.

61 Korea Tripartite Commission, *Minutes of the 60th Meeting of the Special Committee on Restructuring of Public Sector*, August 2003, available online from <<http://www.lmg.go.kr>>, last accessed 28 January 2004.

62 Interviews with staff of the Korea Tripartite Commission and KEPCO indicate that the commission is responsible for a comprehensive investigation of the country's electricity restructuring policy.

63 Korea Tripartite Commission, "Summary of the Joint Research Team's Final Report on Reform of the Electricity Industry," 2004.

64 CEEP, *A Review of US Restructuring Experience*.

Sales of generation and other sector assets to private investors would enable the government to retire a significant portion of the public debt accumulated by the sector. Private generation companies could set pricing structures to achieve a commercial rate of return on their investments. Many believe that this would initially lead to retail price *increases* for several consumer categories.⁶⁵ Following this causal link, public debt would then be transformed into private debt, which private operators would seek to recover through sales. Electricity prices charged by private owners, therefore, would need to offset not only current production costs, but also the cost of the absorbed debt. In this regard, privatization would not eliminate the sector's debt, but would instead become a means by which companies could acquire public assets and seek to retire the debt via higher prices to electricity consumers.

Although factors contributing to reductions in costs can be expected to emerge with privatization, evidence also exists that price increases and price volatility can accompany electricity restructuring. Few recent examples have been better recorded or publicized than California's experience of shortages, blackouts, price spikes and widespread economic harm. Market manipulation by electricity traders, brokers and providers led to fraudulent activity and corporate malfeasance, which resulted in complex legal procedures that are still underway, including civil and criminal prosecutions at the state and federal level.⁶⁶ Unless special market design and policy considerations are taken to ensure market reliability, anticipated economic benefits may not materialize.⁶⁷ Given that South Korea's reform strategy restricted long-term contracts and required divestiture of generation assets from KEPCO, consumers could have been exposed to California-like market power and price volatility problems.

The retention of a governmental monopoly over nuclear power and aggressive plans for expanded use of nuclear power pose significant economic concerns and could be considered the economic Achilles heel of the plan. South Korea has installed 19 nuclear reactors in four complexes and plans to build an additional nine nuclear plants with nearly 11 gigawatts (GW) of new capacity by 2015 (including one reactor for which construction started in 1999). At odds with the government's belief in the viability of nuclear power is the accumulated evidence of its flaws (notably, high capital costs, an unexpectedly frequent record of accidents, unresolved waste disposal

65 Yoon Ja Kim, "A Critical Analysis of the Privatization of KEPCO"; Bang Lim Kim, "Jeolyuk Sanup Gujo Gaepyun: Munjaejungwa Gaesun Banghyang" [Electricity Industry Restructuring: Problems and Plans for Improvement], paper presented at hearings in the Korean National Assembly on MOCIE's Electricity Restructuring Plan, Seoul, 2001.

66 Foundation for Taxpayer and Consumer Rights, *HOAX: How Deregulation Let the Power Industry Steal \$71 Billion from California* (Santa Monica, CA: FTCE, 2002); Harvey Wasserman, "Power Struggle: California's Engineered Energy Crisis and the Potential of Public Power," *Multinational Monitor* (June 2001), pp. 9-20.

67 CEEP, *A Review of US Restructuring Experience*.

issues, and the unavoidable problem of nuclear proliferation and nuclear terrorism).⁶⁸ South Korea's decision to continue support for its nuclear industry puts it in the company of a few developing nations and Eastern Europe, as opposed to North America and most of Western Europe, where the industry has been in decline for decades. Expansion of the country's nuclear generating capacity would seem to be at odds with the goal of national debt reduction, since KEPCO's past nuclear commitments produced much of the electricity sector's current debt. Recent experience is not encouraging. The construction cost for four new reactors in Shingori is projected at US\$8 billion,⁶⁹ most of it to be financed by overseas borrowing. Because nuclear power plants require high load factors to be operated economically, the government's reform agenda calls for the assignment of first dispatch order to the country's nuclear plants.⁷⁰ Thus, the nuclear power policy prong of South Korea's restructuring plan could threaten the anticipated economic gains of reform by forcing the use of a non-competitive electricity source. As a result, the government's financial risks may continue under power sector liberalization, and mounting burdens of foreign debt could be borne by consumers and taxpayers.⁷¹

5.2 Political Contradictions

While, in principle, electricity restructuring alters the decision-making process when it removes monopoly privilege, its governance impact can be complex. To date, the process of establishing its regulatory agencies or other kinds of controlling bodies needed for liberalized electricity markets has perversely tended to reinforce the authority of centralized and largely autonomous organizations. These include power exchanges, independent system operators and regional transmission organizations, all of which diminish the range of local decision making and governance.⁷²

Further, transferring ownership of the South Korean electricity industry to the private sector would not necessarily mean a decentralized decision-making process. The government's plan called for the creation of a few

68 Amory B. Lovins and L. Hunter Lovins, *Brittle Power: Energy Strategy and National Security* (Andover, MA: Brick House Publishing, 1982); John Byrne and Steven M. Hoffman, "The Ideology of Progress and the Globalization of Nuclear Power," in John Byrne and Steven M. Hoffman, eds., *Governing the Atom: The Politics of Risk* (New Brunswick, NJ and London, UK: Transaction, 1996); Howard Geller, *Energy Revolution: Policies for a Sustainable Future* (Washington, DC: Island Press, 2003).

69 Ministry of Commerce, Industry and Energy, *The First Basic Plan for Power Supply: 2002-2015* (Seoul: MOCIE, 2002); International Energy Agency, *Nuclear Power in the OECD* (Paris: IEA, 2001), pp. 130-131.

70 CEEP, *A Review of US Restructuring Experience*; Korea Power Exchange (KPX), "The Korea Power Exchange and Electricity Market," report (Seoul: KPX, 2001).

71 Since debt reduction was a primary motivation for reform, a telling critique of the initiative for the KTC Special Committee was that privatization might leave the debt problem unchanged. See Korea Tripartite Commission, "Summary of the Joint Research Team's Final Report on Reform of the Electricity Industry," (Seoul: KEPCO, 2004).

72 Byrne and Mun, "Rethinking Reform in the Electricity Sector."

generation companies, regional distribution companies, a national transmission company and a power exchange, and these institutions would have organized the conditions for consumer choice. Although wholesale and, eventually, retail consumers will have the right to select their suppliers, the benefit of this choice can be ambiguous. In the US, small electricity users either have not had multiple suppliers from which to choose service, or multiple suppliers have been available but few differences in service after reform have been evident.⁷³ South Korea's reform strategy never anticipated significant retail service options, since the plan was to create only four to seven companies to interface with customers. Under these circumstances, liberalization might cause little more than the shift from a nation-wide, government-owned centralized system to a regional, privately-owned centralized system. As a result, governance advantages from electricity reform seem more promissory than real.

5.3 Social and Environmental Contradictions

Market reform advocates in South Korea argued that competition would promote efficiency and could lead to public benefits, such as the development of so-called "green energy." However, long-term investment in energy conservation and renewable energy can be neglected in the competitive market environment when it places priority on short-term profit maximization. Treating electricity as a commodity can drive economic actors to focus on selling more kWhs, rather than providing more services with fewer kWhs.⁷⁴ And, if the South Korean government continues to subsidize nuclear power generation, its social and environmental costs are not appropriately reflected in market prices, thereby favouring bulk electricity use from nuclear plants and blocking the entry of sustainable energy sources to the market.⁷⁵

Long-recognized social benefits such as universal service, national employment security and public oversight (all of which were formal goals of the earlier electricity regime) have received scant attention in the reform policy. While few found earlier performance on behalf of these goals to be acceptable, the reform regime failed to even require them to be formally addressed. The rush to restructure under pressure from the IMF left little opportunity for consideration of these issues.

Likewise, environmental and social concerns about nuclear power and market-driven development of the electricity sector were neglected in the

⁷³ For example, in Pennsylvania, which has the most active retail access programme in the US, residential customers have few competitive suppliers. As of 2003, the entire state had only one competitive offer below the so-called "price-to-compare." In Massachusetts, a lack of suppliers and differentiated services has resulted in only 3 percent of residential consumers exercising retail choice. See Kenneth Rose, "The State of Retail Electricity Markets in the US," *The Electricity Journal*, vol. 17, issue 1 (2004), pp. 26-36.

⁷⁴ Byrne and Mun, "Rethinking Reform in the Electricity Sector."

⁷⁵ Byrne and Mun, "Rethinking Reform in the Electricity Sector."

national government's deliberations. Even discussions surrounding reconsideration of the liberalization strategy ignored this issue, despite the fact that nuclear energy represents the largest single source of electricity generation for the country. Only civil society discourse—in a fragmentary way—has posed questions about nuclear power.

In brief, monumental as the proposed restructuring changes were in the reach of their privatization, many features of the sector were to be left intact, and none of the long-standing contradictions of the sector would be resolved. When the KTC Special Committee recommended halting the sector's break-up, it concluded a reform effort that arguably was destined, in any case, to fail.

6. A Stalled Agenda

With Cold War combat on the peninsula stalemated, and with the advent of democracy in the country, South Korea now faces the challenge of development according to the dictates of globalization. After the financial crisis of the late 1990s, the original arrangements between the state and *chaebols* that had guided national development could not hold. Mounting debt—with a sizable portion created by electricity sector investments—has damaged the national economy and South Korea's terms of trade. International financiers have sought access to the country's assets, including its electricity infrastructure, and have pushed for the elimination of centralized government economic controls. This has only served to remind the country's unions of the fragility of their political power and led them to reassert their objections to globalization. Heavy reliance on nuclear power has deepened the debt problem and additionally attracted the protests of a newly liberated civil society; these protests have, in turn, focused attention on the unwelcome environmental implications of South Korea's synergistic development model. Unsurprisingly, the idea of more and cheaper electricity as the route to a better economy and society has faced attacks that its architects have been unable to fend off. Reform has thus become inevitable.

At the centre of the turmoil was, and is, KEPCO. South Korea's state-owned electricity monopoly had been essential to the four decades of rapid economic development for which this Asian tiger is famed. Efforts to convert this mainstay of synergistic development, therefore, would be of great economic, social and symbolic importance. Indeed, restructuring its operations potentially constitutes a radical step—a contest with the history that had spawned rapid growth and modernization.

Yet the solutions attempted in the government's restructuring plan never really broke with the more-is-better formula. It was to be expected, therefore, that a challenge based on restructuring's impacts on the promises of the old electricity regime—cheap energy, job growth and rising trade surpluses—could stall the momentum for reform. Here, we suggest that while elements

of the economy and civil society have moved beyond synergistic development (and its harmonized variant), the capacities and imagination of key national policymakers have not. After all, with or without liberalization, the government plan—to meet the projected annual growth of electricity demand to 2015 with an addition of 45,130 MW in new capacity that will cost approximately US\$50 billion—has remained in place.⁷⁶ Until the contradictions of the country's modernizing model are fully addressed, any restructuring of KEPCO will be inadequate.

Important lessons can be learned from South Korea's stalled agenda on restructuring. The country can now be added to the list of nations whose experiences with liberalization have proved the inadequacy of political and economic doctrines that ignore social and environmental concerns. At the same time, the forces of globalization and an awakened civil society will not let things remain as they were. The longer South Korea ignores the contradictions of its synergistic development model, the higher the eventual costs of change. In a contest of old ideals and the demands of a new era, reform of the country's electricity sector is at a crossroads.

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Council on Energy and Environment, Seoul, Korea, October 2004*

⁷⁶ Korea Power Exchange (KPX), "The Korea Power Exchange (KPX) and Electricity Market," report (Seoul: KPX, 2001).