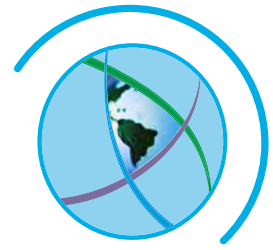


CLEAN DEVELOPMENT MECHANISMS' IMPLICATIONS
FOR THE KOREAN ELECTRICITY SECTOR AND
A PROPOSAL OF "LESS STRICT APPROACH"



Sangmin Shim



CISDL Legal Working Paper Series on
Climate Change Law and Policy





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A CISDL WORKING PAPER

Sangmin Shim

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1. Introduction

2. CDMs: A Friend of Developing Countries?

2.1 CDMs' Potential to Address Development Concerns

2.2 Weakening Element: Additionality

3. Korean Electricity Sector in Climate Law Context

3.1 Policy Priorities in the Korean Electricity Sector

3.1.1 Stable and Economic Power Supply

3.1.2 Energy Security

3.2 Stalled Recent Restructuring Efforts

3.3 Implications for Climate Policy

4. CDMs' Implications for the Korean Electricity Sector and a Proposed "Less Strict Approach"

4.1 CDMs' Potential Benefits for the Korean Electricity Sector

4.2 Proposal for a Flexible Approach on CDM Approval Process

5. Conclusion

1. Introduction

With the coming into force of the Kyoto Protocol to the United Nations Framework Convention on Climate Change,¹ many scholars and practitioners alike have hailed the enlivened Kyoto Protocol as the most significant first step toward tackling climate change.² Expectations are high on the environmental front, because Annex B countries³ will intensify their efforts to reduce greenhouse gas (GHG) emissions so that they may reach national emission reduction targets in the first commitment period of 2007 through 2012. Although the United States decided not to ratify the Kyoto Protocol in 2001⁴ and has stayed outside the global climate regime thereafter,⁵ it may be said that the attempts to stabilize and reduce emissions of anthropogenic GHGs worldwide have firmly taken root and become systemized.

The Kyoto Protocol provides for several elements of flexibility to help Annex I countries reduce GHG emissions at least cost. Among what are called the “flexibility mechanisms,” the Clean Development Mechanism (CDM)⁶ cuts an interesting figure compared to other flexibility arrangements. It is because, while the other two flexibility mechanisms, namely Joint Implementation (JI)⁷ and Emissions Trading (ET),⁸ are allowed only for Annex I countries and enterprises, the CDM is designed to also benefit non-Annex I countries, most of which are still in pressing need of development and with relatively little focus on environmental protection. If the benefits that CDMs would generate for developing countries were substantial enough, it could effectively evolve into a valuable method to encourage developing countries to join in the search for climate-friendly development.

¹ Kyoto Protocol to the United Nations Framework Convention on Climate Change, Dec. 10, 1997, 37 I.L.M. 22 (entered into force Feb. 16, 2005) [hereinafter Kyoto Protocol].

² See, e.g., Cory C. Miller, *Developments in Climate Change in 2004: Three Cheers for Russia*, 9 COLO. J. INT’L ENVTL. L. & POL’Y B. 143, 152 (2004); Chester Brown, *The Kyoto Protocol Enters into Force*, ASIL Insight, Feb. 2005, available at <http://www.asil.org/insights/2005/03/insights050301.html> (last visited Dec. 22, 2005).

³ Annex B countries are a group of countries that are listed in the Annex B of the Kyoto Protocol, which specifies the “quantified emission limitation or reduction commitments” for each listed country. As of January 18, 2006, 34 out of the 38 Annex B countries are bound by the Kyoto Protocol. Countries that are Annex B parties but have not agreed to be bound by the Kyoto Protocol are Australia, Croatia, Monaco and the United States. See *Kyoto Protocol – Status of Ratification*, available at http://unfccc.int/files/essential_background/kyoto_protocol/application/pdf/kpstats.pdf (last modified Jan. 18, 2006)

⁴ See, e.g., Letter from President Bush to Hagel, Helms, Craig, and Roberts, at <http://whitehouse.gov/news/releases/2001/03/20010314.html> (Mar. 13, 2001).

⁵ Rather than complying with the mandatory GHG emission reductions contemplated by the Kyoto Protocol, the United States have instead formulated a “three-prong” approach, centering around reduction of GHG intensity, investment in science and technology, and bilateral and multilateral cooperation with a view to designing a different scheme to fight climate change. See, e.g., *U.S. Taking Concrete Actions on Climate Change, Official Says*, at <http://usinfo.state.gov/gi/Archive/2003/Dec/05-635331.html> (last visited Jan. 19, 2006); Harlan L. Watson, *Statement to the First Meeting of the Plenary*, at <http://usinfo.state.gov/gi/Archive/2004/Dec/06-395931.html> (Dec. 6, 2004); *U.S. “Moving Forward” in Commitment to Slowing Climate Change*, at <http://usinfo.state.gov/gi/Archive/2005/Nov/30-276900.html> (last visited Jan. 19, 2006).

⁶ Kyoto Protocol, *supra* note 1, art. 12.

⁷ Kyoto Protocol, *supra* note 1, art. 6.

⁸ Kyoto Protocol, *supra* note 1, art. 17.

It must be taken into account, however, that the potentials of the CDM could often be frustrated by a variety of factors constraining its proper functioning. Much of such frustration may come from the inherent design defects within the CDM itself, while attention should also be paid to the hosting countries' policy concerns as well as institutional settings that altogether might adversely affect the value of the CDM. Confronted with such possibilities of underperformance, developing countries will likely be hesitant in hosting CDM activities within their territories that could restrain their policy choices while bringing few benefits in exchange. If it is clear that under the current circumstances the CDM would not assist developing countries in actively pursuing reductions of GHG emissions, then an interesting question would be what measures could be taken to make CDMs more attractive to these countries, while the CDM's potential climate benefits would be preserved. Meanwhile, because not all the developing countries are equally situated in terms of economic development, a careful examination of what differing effects CDMs would make on different developing countries is also warranted.

To put the CDM's implications for developing countries in a dynamic context, this paper has chosen the Korean electricity sector as a case for highlighting the developing countries' economic concerns, as well as for emphasizing the importance of structural shifts when policy decisions are made. The analysis of this sector illustrates not only the CDM's potentials for more climate-friendly sectoral restructuring, but also its deficiency to ensure enthusiastic responses from advanced developing countries such as Korea. In essence, this paper argues that, despite the potential benefits for developing countries that could come from participating in CDM projects, elements in the design of CDMs and external factors surrounding developing countries' development concerns will inevitably reduce the CDM's attractiveness, and it thus suggests an amendment to the CDM approval process so that investment in and host activities for CDMs may be facilitated.

The structure of this paper is like the following. Part II describes the benefits that developing countries may obtain from participation in CDM projects, as well as the weakening elements that will prevent CDMs' intended outcome from being materialized. Part III analytically describes the Korean electricity sector from climate law and policy perspectives, paying close attention to the recent restructuring efforts and drawing implications for pursuing sectoral climate goals. Part IV establishes that, while CDMs can theoretically contribute to developing more climate-friendly Korean electricity sector, they are expected to fall short due to the design factors and external factors addressed in Part II, and proposes a "less strict approach" in the CDM approval process so that CDMs may be made a more appealing option for Korean electricity sector specifically and for developing countries in general. Part V is a conclusion that summarizes the discussion and speculates on the future prospects for CDMs.

2. CDMs: A Friend of Developing Countries?

2.1 CDMs' Potential to Address Development Concerns

As is evident in the text of article 6 of the Kyoto Protocol, CDMs are mainly intended as a mechanism that assists Annex B countries in achieving GHG emission reductions by allowing them and/or their businesses to invest in climate-friendly projects within the territory of non-Annex B countries, and reaping certified emission reductions (CERs) from the projects, so that they could use such CERs towards meeting their national reduction targets. True to the notion of

the “flexibility mechanisms,” this arrangement gives Annex B nations more options when deciding where emission reductions can be made.⁹ If CDM opportunities are available for Annex B countries, these countries may simply compare the unit price of domestic GHG emission reductions with that of reductions coming from CDMs and decide to utilize whichever is cheaper. This mechanism is made possible by the fact that the effects of GHG emissions, as well as their reductions, are equal regardless of where they occur. In this respect there is no distinction between CDMs and the other flexibility mechanisms, so long as they are concerned with helping Annex B countries achieve GHG emission reductions cost-effectively.

What makes CDMs distinct from the other two flexibility mechanisms is that they offer opportunities for sustainable development to developing countries.¹⁰ If hosting a variety of emission-reducing projects simultaneously served developing countries’ focus on economic development as well as other policy concerns, then these countries could let the climate-friendly projects stand within their territories and use them to contribute to the countries’ sustainable development. The list of justifiable concerns may be long, as CDM projects could take off in various fields and the meaning of sustainable development may be different from one developing country to another.¹¹ A perfect example of a CDM project could be replacing coal-fired power plants with newer and cleaner natural gas-fired electricity facilities, thereby bringing more fuel-efficiency as well as environmental benefits at the same time.

The CDM’s potential to benefit developing countries also lies in its workability as financial resource inflows.¹² Typically CDMs will take the form of foreign direct investment when the transaction is structured, and considering that developing countries often lack financial resources to rebuild or reshape an industrial sector, the existence of CDMs may have the effect of channeling monetary resources to those in need. In this respect, the developing country may benefit from hosting climate-friendly as well as development-enhancing projects, as these CDMs are conducive to securing what the country hopes to obtain eventually from the international financial market, while they are also the best possible option to achieve sustainable development. Whereas a share of the proceeds from CDM project activities should be paid to assist certain developing countries most vulnerable to the consequences of climate change and to cover

⁹ Such geographical flexibility as the Kyoto Protocol’s flexibility mechanisms provide to Annex B countries is referred to by some literature as “where” flexibility. See, e.g., Jeffrey A. Frankel, *The Economics of the Kyoto Protocol and Global Climate Change Policy*, at <http://www.weathervane.rff.org/pop/pop10/frankel.htm> (last visited Sept. 28, 2002); see also ROBERT W. HAHN & ROBERT N. STAVINS, WHAT HAS THE KYOTO PROTOCOL WROUGHT? THE REAL ARCHITECTURE OF INTERNATIONAL TRADABLE PERMIT MARKETS 30 n.11 (1999).

¹⁰ Kyoto Protocol, *supra* note 1, art. 12, ¶2; Anita M. Halvorssen, *The Kyoto Protocol and Developing Countries—The Clean Development Mechanism*, 16 COL. J. INT’L L. & POL’Y 353, 367 (2005).

¹¹ Halvorssen, *supra* note 10, at 367. Halvorssen points out that, even in the Marrakesh Accords reached at the Seventh Conference of the Parties (COP-7) in 2001, it was left for developing countries to decide which interpretation of sustainable development should be used in allowing CDM projects in the territory. Halvorssen, *supra* note 10, at 367. The Decision 17/CP.7, which describes the modalities and procedures for CDMs agreed at COP-7, declares that “. . . it is the host Party’s prerogative to confirm whether a clean development mechanism project activity assists it in achieving sustainable development. . .” Conference of the Parties, *Report of the Conference of the Parties on Its Seventh Session, Held at Marrakesh from 29 November to 10 November 2001, Addendum, Part Two: Action Taken by the Conference of the Parties*, vol. II, at 20, U.N. Doc. FCCC/CP/2001/13/Add.2 (Jan. 21, 2002), available at <http://unfccc.int/resource/docs/cop7/13a02.pdf> [hereinafter *COP-7 Report 2-Add.2*].

¹² Sujata Gupta & Preety Bhandari, *CDM and its Implications for Developing Countries*, in CLEAN POLICY AND DEVELOPMENT – FLEXIBLE INSTRUMENTS AND DEVELOPING COUNTRIES 80, 88 (Axel Michaelowa & Michael Dutschke eds., 2000).

administrative costs for the CDM,¹³ because such surcharges would be on the basis of CERs,¹⁴ it is only Annex B countries and not CDM-hosting developing countries that would take the burden from the surcharges and the resulting lower valuation of CDM activities.¹⁵

To sum up, CDMs could offer developing countries great opportunities for benefits, by combining transfer of climate-friendly technology with development within the host countries' territory, so that a path to sustainable development may be open through private participation.

2.2 Weakening Element: Additionality

Whereas CDMs represent possibilities that many developing countries will join in the effort to rein in GHG emissions without frustrating their development concerns, one element in the CDM structure, so-called "additionality," may significantly lessen the CDM's potential value. This weakening element would make private participants reluctant to invest in some of the intended CDM projects, leaving developing countries' wishes for sustainable development unfulfilled and subsequently putting hosting countries' interest in the climate change regime at a low point.

Under the Kyoto Protocol, GHG emission reductions from CDM projects should be additional to the reductions that would happen anyway without the CDMs.¹⁶ In what manner this additionality requirement should be understood is subject to various interpretations, but several criteria have been identified in the scholarly discussion.¹⁷ The most obvious one is "environmental additionality," meaning that CDM projects should yield emission reductions that

¹³ Kyoto Protocol, *supra* note 1, art. 12, ¶8.

¹⁴ The share of the proceeds from CDMs to assist most vulnerable nations is currently set at 2 percent of the issued CERs, which will go to the Adaptation Fund to assist developing State parties to the Kyoto Protocol in setting up adaptation projects and programs. *COP-7 Report 2-Add.2*, *supra* note 11, at 23. See also Conference of the Parties, *Report of the Conference of the Parties on Its Seventh Session, Held at Marrakesh from 29 November to 10 November 2001, Addendum, Part Two: Action Taken by the Conference of the Parties*, vol. I, at 52, U.N. Doc. FCCC/CP/2001/13/Add.1 (Jan. 21, 2002), available at <http://unfccc.int/resource/docs/cop7/13a01.pdf> [hereinafter *COP-7 Report 2-Add.1*].

As for the share of the proceeds to cover administrative expenses, the Conference of the Parties serving as the Meeting of the Parties to the Kyoto Protocol (COP/MOP) decided at its first session that the level of the proceeds should be US\$0.10 per CER issued in any calendar year up to the first 15,000 tons of CO₂ equivalent, and US\$0.20 per CER thereafter. Conference of the Parties serving as the Meeting of the Parties to the Kyoto Protocol, *Report of the Executive Board of the Clean Development Mechanisms and Election of Members of the Executive Board, Proposal by the President, Draft Decision -/CMP.1, Further Guidance relating to the Clean Development Mechanism*, at 7, U.N. Doc. FCCC/KP/CMP/2005/L.7 (Dec. 8, 2005), available at <http://unfccc.int/resource/docs/2005/cmp1/eng/107.pdf> [hereinafter *COP/MOP Report*].

¹⁵ RICHARD B. STEWART & JONATHAN B. WIENER, RECONSTRUCTING CLIMATE POLICY BEYOND KYOTO 118-9 (2003). Stewart and Wiener also refer to the CDM's high transaction costs as another reason to expect CERs' lower market value compared to other tradable emission units. *Id.* at 119.

¹⁶ Kyoto Protocol, *supra* note 1, art. 12, ¶5 (c).

¹⁷ See, e.g., Kyle W. Danish & Jonathan C. Rotter, *Drafting Contracts for Greenhouse Gas Offset Projects in Developing Countries*, 15 NAT. RESOURCES & ENV'T 168, 170 (2001); Patricia Nelson, *An African Dimension to the Clean Development Mechanism: Finding a Path to Sustainable Development in the Energy Sector*, 32 DENV. J. INT'L. & POL'Y 615, 632-3 (2004); Michael A. Toman, *Establishing and Operating the Clean Development Mechanism*, in CLIMATE CHANGE ECONOMICS AND POLICY – AN RFF ANTHOLOGY 216, 217 (Michael A. Toman ed., 2001); SEBASTIAN OBERTHÜR & HERMANN E. OTT, THE KYOTO PROTOCOL — INTERNATIONAL CLIMATE POLICY FOR THE 21ST CENTURY 169, 177-8 (1999).

are separate from what is achievable under the business-as-usual scenario.¹⁸ The second one is “investment additionality,” which would rule out from the category of CDMs such projects as would be profitable even without CERs.¹⁹ The third one, “institutional additionality,” would require CDM projects to do more than simply following host countries’ relevant regulations in terms of GHG emission reductions.²⁰ The fourth one is “financial additionality,” which implies that countries should not redirect to CDM projects public financial resources that would be used anyway for emission reduction purposes, such as Official Development Aid (ODA).²¹ Lastly, the criterion “technological additionality” would call for CDM projects to transfer new technologies to host countries.²² Of these five criteria, the first three are explicitly incorporated in a manual prepared by the CDM Executive Board to help establish additionality in CDM project planning,²³ whereas the remaining two criteria appear in the preamble of the decision operationalizing the CDM.²⁴ To focus on more substantial aspects of the CDM, discussion of the additionality concept will proceed on those three – environmental, investment and institutional – additionality tests.

Without doubt the additionality requirement came from the concern that some alleged CDM projects might repackage emission reductions that were going to occur without the assistance of CDM projects, and receive credits out of them.²⁵ The key to deciding whether reductions coming from CDMs meet this requirement is therefore setting up a realistic, business-as-usual emission baseline that could be drawn without taking into account the CDM activities.²⁶ Only when the emission baseline was established would it be possible to calculate how much emission reduction could be made by comparing baseline emissions with emissions from the relevant CDM project, and to see whether CDM-induced emission reductions were additional or not.

It is difficult, however, to project a definite hypothetical emission baseline, because the projection depends on many variables such as economic growth, demand for specific technologies, and so forth.²⁷ Such difficulty would be more salient in a country where there is

¹⁸ Danish & Rotter, *supra* note 17, at 170; Nelson, *supra* note 17, at 632; Toman, *supra* note 17, at 217; OBERTHÜR & OTT, *supra* note 17, at 169.

¹⁹ Danish & Rotter, *supra* note 17, at 170; Nelson, *supra* note 17, at 632-3.

²⁰ Nelson, *supra* note 17, at 633; S. Brown et al., *Issues and Challenges for Forest-Based Carbon-Offset Projects: A Case Study of the Noel Kempff Climate Action Project in Bolivia*, 5 MITIGATION & ADAPTATION STRATEGIES FOR GLOBAL CHANGE 99, 102 (2000), available at <http://springerlink.metapress.com/media/3nkuvjluxnv5lu7pnqt1/contributions/x/8/q/t/x8qtk282703q27u5.pdf>.

²¹ Danish & Rotter, *supra* note 17, at 170; Nelson, *supra* note 17, at 633; Toman, *supra* note 17, at 217.

²² Danish & Rotter, *supra* note 17, at 170; Nelson, *supra* note 17, at 633.

²³ CDM-Executive Board, Tool for the Demonstration and Assessment of Additionality (version 02), available at http://cdm.unfccc.int/methodologies/PAMethodologies/AdditionalityTools/Additionality_tool.pdf (Nov. 28, 2005).

²⁴ COP-7 Report 2-Add.2, *supra* note 11, at 20.

²⁵ To a certain degree this concern therefore shares much with the discussion on “hot air,” which can be defined as the “degree to which a country’s – project’s in the case of the CDM – assigned amount exceeds what its emissions would be in the absence of any abatement measures.” Michael Grubb, *International Emissions Trading under the Kyoto Protocol: Core Issues in Implementation*, 7 REV. EUR. COMMUNITY & INT’L ENVTL L. 140, 142 (1998). For discussion on hot air generally, see Sangmin Shim, *Korea’s Leading Role in Joining the Kyoto Protocol with the Flexibility Mechanisms as “Side-Payments,”* 15 GEO. INT’L ENVTL L. REV. 203, 217-8 (2003).

²⁶ Danish & Rotter, *supra* note 17, at 170; Rianne de Leeuw & Ekko C. van Ierland, *CDM in Climate Policies in the Netherlands: A Promising Tool?* in CLIMATE CHANGE AND THE KYOTO PROTOCOL – THE ROLE OF INSTITUTIONS AND INSTRUMENTS TO CONTROL GLOBAL CHANGE 171, 177 (Michael Faure et al. ed., 2003).

²⁷ Toman, *supra* note 17, at 219; Leeuw & Ierland, *supra* note 26, at 177.

limited capacity to figure out current emissions or future emission trajectory,²⁸ but establishing emission baselines is equally a daunting task for advanced developing countries such as Korea. Obviously there would be cases where baselines could be easily drawn. For instance, if the intended CDM project were to change generation fuels from coal to climate-friendly natural gas, the baseline emissions could be calculated simply by having the amount of coals used multiplied by GHG emissions per unit of coal. However, if the suggested CDM project were to build a new power plant using natural gas, it would not be clear what type of fuel could be designated for use in calculating hypothetical baseline emissions, especially when several fuel choices are available in the market with almost equal weight. The decision on the baseline emissions therefore would have to involve substantial degree of uncertainty, bordering on arbitrariness.

Such uncertainty remains even in cases where establishing a realistic business-as-usual emission projections was made on the best possible information, if such baseline scenarios depended very much on a shifting, not necessarily climate-related institutional setting and/or policy measures within a rapidly changing sector. To reduce uncertainty as much as possible, countries often prepare long-term plans to direct industries and enterprises toward predictable behavior. If many assumptions underlying such plans became shaky or untenable, it would be obvious that both the business-as-usual and the CDM emission baselines could be called into question in terms of their accuracy.

The impact of such uncertainty on the proposed CDM activities may well be felt by private participants and potential CDM-hosting countries alike. In the first place, by driving private participants – mainly foreign investors – wary of the possible failure to have their CDM projects authorized, this uncertainty might push the investors to look for candidate projects where there is little risk, in other words, “low-hanging fruits.”²⁹ Countries like China and India, where traditional fossil-fuel usage has taken hold in their development paths, could easily become the largest host countries for CDM projects,³⁰ whereas advanced developing countries and least-developed countries would be left out, due to either much technical difficulty reducing GHG emissions at affordable costs or insubstantial amount of GHG emissions worth drawing investors’ attention.

An outcome like this should not pose any problem as long as CDMs are concerned with helping Annex B countries achieve reduction commitments at least cost and also with assisting some, less developed countries in making for sustainable development. However, if CDMs were to serve as incentives for many developing countries, irrespective of their development stage, to join in the global effort to fight climate change, such a “bypass” would effectively leave many of both advanced and least developing countries few tangible benefits, ultimately weakening their potential interest in the climate regime. Neither would it be in conformity with the decision by the COP-7 recognizing the “need to promote equitable geographic distribution of clean

²⁸ Nelson, *supra* note 17, at 635.

²⁹ In the debate of climate change and tradable emissions, “low-hanging fruits” has been used to describe no or little cost actions to achieve GHG emission reductions, but often invoking negative image, in the sense that it is one-time option and may hinder long-term innovation in developed countries. See, e.g., John F. Temple, Note, *The Kyoto Protocol: Will It Sneak Up On the U.S.?* 28 BROOK. J. INT’L L. 213, 222-3 (2002); Nelson, *supra* note 17, at 645-6; David M. Driesen, *Free Lunch or Cheap Fix?: The Emissions Trading Idea and the Climate Change Convention*, 26 B.C. ENVTL AFF. L. REV. 1, 41-6 (1998).

³⁰ Nelson, *supra* note 17, at 633.

development mechanism project activities at regional and subregional levels, [. . .]”³¹ This additionality requirement thus constitutes a legitimate concern that must be addressed if securing early reductions from many GHG emitting, developing countries is a desirable goal.

3. Korean Electricity Sector in Climate Law Context

3.1 Policy Priorities in the Korean Electricity Sector

3.1.1 Stable and Economic Power Supply

Throughout the past four decades, rapid economic development has been Korean governments’ primary concern in policymaking.³² As electricity was widely conceived as the essential input to power economic growth,³³ securing stable and economic supply of electricity became a pressing task for government to take on.³⁴ Therefore Korean government actively engaged in expanding power supply, which was mainly pursued through Korean Power Corporation (KEPCO), a state-owned electricity enterprise that until recently was a virtual monopoly in all sectors of power industry.³⁵ The question of financing the expansion of electrical facilities was left to the Korea Industrial Development Bank, another government-controlled enterprise whose main task was to supply low-interest, long-term loans to strategic industries to sustain economic development.³⁶ KEPCO could also acquire loans from other domestic and foreign financial institutions at preferential rates, often backed up by the implicit government guarantee for repayment.³⁷ In addition, to maintain electricity price at a level that could make electricity accessible to many

³¹ *COP-7 Report 2-Add.2*, *supra* note 11, at 20.

³² See, e.g., John Byrne et al., *Electricity Reform at a Crossroads: Problems in South Korea’s Power Liberalization Strategy*, 77 PAC. AFF. 493, 495-6 (2004); NORMAN EDER, *POISONED PROSPERITY: DEVELOPMENT, MODERNIZATION, AND THE ENVIRONMENT IN SOUTH KOREA* 21 (1995).

³³ Byrne et al., *supra* note 32, at 496.

³⁴ To pursue such a policy objective, the Korean government took priority in outlining five-year plans on power source development starting from 1962. KOREAN ENERGY ECONOMY INSTITUTE, *SAECHEONNYEONEUL HYANGHAN ENERGY SANEOPUEUI DOJEON* 110-1 [Challenges to Korean Energy Industry in the New Millennium] (2000).

³⁵ The Korean Electric Power Corporation Act stipulates that the government must provide for at least 51 percent of the KEPCO capital, which is currently set at six trillion Korean won. (approximately US\$ 6 billion) *Hangukjeolryokgongsabeop* [Korean Electric Power Corporation Act, hereinafter KEPCO Act], Law No. 6755, last amended Dec. 5, 2002, art. 4.

³⁶ Article 1 of *Hanguksaneopeunhaengbeop* [Korea Industrial Development Bank Act, hereinafter KIDB Act] stipulated that the main objective of KIDB is to “provide and manage financial funds for major industries to expedite industrial development and national economic growth, in compliance with national policies.” KIDB Act, Law No. 4052, Dec. 31, 1988 (last amended Dec. 31, 2002, Law No. 6679), art. 1. The said law also specified in article 18, subparagraph 1, that KIDB’s business comprised the “provision and management of loans necessary for the acquisition, amelioration or repair of facilities (including ships and vehicles, true throughout the whole article) which contribute to the development of such industries as *electricity*, coal, shipbuilding, steel and other industries as specified by a presidential decree, the repayment period of which shall be longer than one year.” (italics added by the author.) KIDB Act, art. 18, subpara. 1. Later the amendment of the same law on August 28, 1997 deleted the reference to electricity industry as an instance for qualified industries for long-term loans from KIDB, and a more general term “major industries” was used instead to refer to the target industries for long-term loans. KIDB Act, art. 18, subpara. 1. (Law No. 5372, amended on Aug. 28, 1997) However, it is arguable that electricity industry is qualified for loans from KIDB, since no provision defining “major industries” can be found anywhere and electricity industry is as important as other industries in terms of size and economic significance.

³⁷ INT’L ENERGY AGENCY, *ENERGY POLICIES OF THE REPUBLIC OF KOREA – 1992 SURVEY* 77 (1992).

industrial users, government retained a firm grip on the price determination mechanisms by requiring KEPCO to submit to government any intended change of tariffs for approval.³⁸ Cross-subsidization was also put in place by keeping industrial rate low while setting residential and commercial rates relatively high.³⁹

Whereas the government played a pivotal role in building up a well-organized electricity sector, the financial strain began to reveal itself as the national economy continued to grow and more power generation was necessary to keep up with the rapidly increasing power demand. Already the size of debt borne by the KEPCO is alarming, and still swelling.⁴⁰ Meanwhile, because the power expansion proceeded according to governmental plans which were by definition slow in adapting to changing circumstances, the national economy had to suffer from an alternation of power surplus and shortage.⁴¹ To find adequate sources of capital that would keep power expansion while alleviating planning difficulties, government attempted to tap private capital by allowing participation in the generation business by independent power producers (IPPs),⁴² which would sell all the generated electricity to the KEPCO under power purchase agreements (PPAs).⁴³ While the number of IPPs in the sector is quite small and their participation limited in extent,⁴⁴ their importance is expected to grow over time.⁴⁵ The financial crisis in 1997 once again made salient the question of financing capacity expansion in the discussion of economic policies, which led to an attempt to restructure the whole industry to be described below.

3.1.2 Energy Security

While it was imperative to obtain uninterrupted supply of fuels in order to operate generation facilities smoothly, Korea had very few domestic energy sources, and even the available domestic fuels such as coal had only limited reserves.⁴⁶ Therefore it had to rely heavily on foreign countries for fuel supply, and oil was the main energy import until mid-1970s because of

³⁸ *Jeongisaeopbeop* [Electricity Enterprises Act, so referred to hereinafter], Law No.2509, Feb. 8, 1973 (last amended ec. 31, 2004, Law No. 7284), art. 17, ¶1.

³⁹ INT'L ENERGY AGENCY, ENERGY POLICIES OF IEA COUNTRIES — THE REPUBLIC OF KOREA 2002 REVIEW 60 (2002), as well as the accompanying table 12. The electricity tariff schedule is designed to charge differential rates to six different categories – residential, commercial, educational, industrial, agricultural, and street lighting. This electricity tariff, as approved by the Minister of Commerce, Industry and Energy after a long review and deliberation process, becomes an integral part of the general agreement on electricity supply prepared by KEPCO. Electricity Enterprises Act, *supra* note 38, art. 17, ¶1.

⁴⁰ Byrne et al., *supra* note 32, at 498, 501.

⁴¹ *Id.* at 498.

⁴² As an expression of such policy turnabout, the third and fourth Long-Term Electricity Supply and Demand Plans issued in 1995 anticipated private participation while planning power supply expansion. KOREAN ENERGY ECONOMY INSTITUTE, *supra* note 34, at 113.

⁴³ Byrne et al., *supra* note 32, at 500.

⁴⁴ Since the first IPP in Korea, Hanwha Energy, started its business in 1972, only four IPPs have gained presence in the market apart from the Korean Water Resource Corporation, a government-owned enterprise that have built multi-purpose dams that were also used for generation purposes. OECD, REGULATORY REFORM IN KOREA — REGULATORY REFORM IN THE ELECTRICITY SECTOR 11 (2000); Yu-mi Mun, *Power Sector Reform in South Korea* 96, available at http://prayaspune.org/energy/41_07korea.pdf (last visited Apr. 12, 2005).

⁴⁵ According to the 1995 Long Term Power Development Plan prepared by the government, more than a half of the fossil-fuel generation capacity would be supplied by the private participants by 2010. Byrne et al., *supra* note 32, at 500.

⁴⁶ An estimate in 1998 shows that Korea had 82 million tons of reserves of medium-quality, anthracite coal, which could be used up in 19 years. INT'L ENERGY AGENCY, *supra* note 39, at 107.

its low price.⁴⁷ As the oil price hikes from 1973 made the national economy suffer greatly, however, Korean government began to realize the importance of maintaining secure and diversified energy sources, and since then energy security has become another predominant concern in the field of Korean energy sector policymaking.⁴⁸

Such a policy concern also affected the Korean electricity sector in various ways. For one thing, the government directed the KEPCO to set up successive Long Term Power Development Plans (LTPDPs),⁴⁹ which specified the fuel portfolio of generation facilities by designating the timing and type of power plants to be built.⁵⁰ For instance, when PosEnergy, LG Energy and Hyundai Energy won the bids to build new generation facilities in July and August 1996, two of the plants were to be LNG-fired while the other was to be fueled by coal.⁵¹ As a consequence, there was little, if any, room for participants in the electricity sector to freely decide their own course of action. In other words, what government planned and announced affected every participant as if they had been enacted as law. For another, as government made its best effort to establish secure power supply, nuclear generation emerged as an attractive source of electricity because uranium price fluctuations in the world market would not seriously impact overall generation costs due to the fuel cost's low weight in the cost composition.⁵² With very little objection from the civil society because of its virtual non-existence before 1990s,⁵³ nuclear generation facilities continued to build up, ultimately taking more than 40 percent of the national generation portfolio in 1998.⁵⁴ The end result was a generation portfolio of diverse fuel options, with nuclear, , natural gas, oil, coal and not very sizeable renewable resources put together.⁵⁵

3.2 Stalled Recent Restructuring Efforts

The above-mentioned financial strain to keep expanding power supply finally led to a government's rethink on its earlier policy of taking responsibility in generation supply buildup.⁵⁶ The financial crisis in 1997, which devastated the national economy, also forced Korean government to consider restructuring many industrial sectors that had been under the influence of government, with a view to fostering market economy.⁵⁷ The push came from the World Bank

⁴⁷ MINISTRY OF COMMERCE, INDUSTRY & ENERGY, ENERGY POLICES OF KOREA 2 (2004).

⁴⁸ *Id.*

⁴⁹ Mun, *supra* note 44, at 97.

⁵⁰ As for the history of power development plans in Korea, see *Gungnae Jeollyeoksaneopeui Yeoksa Hanjeon* [KEPCO, history of Korean Electricity Industry], available at <http://www.eenews.co.kr/sub/energySense/SenseContent.asp?num=679&part=1&searchKey=&searchPart=&page=2> (last visited Feb. 20, 2006).

⁵¹ KOREAN ENERGY ECONOMY INSTITUTE, *supra* note 34, at 114.

⁵² OECD, *supra* note 44, at 8; Korean Atomic Energy Research Institute, *Wonjaryeokgwa Gyeongje* [Nuclear Energy & Economy], available at http://www.kaeri.re.kr/3_2_2.htm (last visited Feb. 20, 2006).

⁵³ With regard to the history of Korean environmental civil society, see EDER, *supra* note 32, at 99-134.

⁵⁴ OECD, *supra* note 44, at 8.

⁵⁵ As of June 2005, the portion of respective generation types in total generation was like following: Nuclear (40.3%), gas (16.0%), oil (4.8%), coal (36.7%), hydro (1.4%), renewable (0.1%), and cogeneration (0.7%). KEPCO, *Jeollyeoktonggyesokbo* [The Monthly Report on Major Electric Power Statistics], December 2005, at 27, available at <http://cis.kepco.co.kr/cis/updata/service/200512.pdf> (last visited Feb. 20, 2006).

⁵⁶ As for the developments in the electricity sector leading to the restructuring plan in 1999, see generally MOCIE, *Restructuring Plan for the Electricity Supply Industry*, available at <http://www.mocie.go.kr/eng/plolicies/elec/elc1.asp> (last visited May 4, 2005).

⁵⁷ Byrne et al., *supra* note 32, at 500-1.

and International Monetary Fund as well, which exerted influence in national economic policy making in exchange for arranging a US\$ 17 billion stand-by loan to help pay Korea's foreign debt.⁵⁸ In June 1998, the government included the electricity sector in its privatization plan as one possible case for early privatization, setting the stage for a further restructuring.⁵⁹

The course towards electricity sector restructuring took another turn in 1999, when the Korean government adopted the "Basic Plan for Restructuring the Electricity Supply Sector"⁶⁰ along the lines of "neoliberal electricity reform"⁶¹ that swept the world in 1990s. The plan's objectives were to 1) introduce competition to the electricity sector as much as possible; 2) give consumers the best possible choice when it came to deciding from whom they would purchase electricity; and 3) resolve the issue of having to keep up with power demand with new generation facilities by tapping the market.⁶²

True to these policy objectives, the Basic Plan contemplated three stages of phased restructuring in the sector, starting from generation and moving to distribution. The first stage was to involve liberalization of the generation sector by 2002 by regrouping KEPCO's generation assets into several generation subsidiaries, laying the ground for generation competition by the subsidiaries.⁶³ To allow full-blown competition, Korea Power Exchange (KPX) was to be established where generators would bid to sell power to KEPCO, which would be required to purchase all electricity produced by the generation subsidiaries concerned.⁶⁴ To effectively regulate the electricity sector, a new regulation agency named Korea Electricity Commission (KOREC) was to be set up.⁶⁵ The second stage was to focus on the liberalization of the distribution sector by 2009, allowing massive power users limited choice to pick power suppliers, while distribution assets were to be regrouped to generate regional distribution companies.⁶⁶ The national transmission grid would remain within the hands of KEPCO, and it would have to ensure equitable access to every distributor without discrimination.⁶⁷ The third

⁵⁸ As the Korean economy became on the verge of collapse from the weight of short-term foreign debts totaling US\$ 100 billion, the Korean government entered into a standby arrangement with the IMP in December 1997 to borrow a SDR 15.5 billion which approximated US\$ 17 billion. In exchange, the Korean government accepted to implement a series of structural adjustment programs to "address the fundamental causes of its current financial difficulties." Republic of Korea, *Letter of Intent*, (Dec. 3, 1997), available at <http://www.imf.org/external/np/loi/120397.HTM> (last visited Sept. 15, 2005).

⁵⁹ See Republic of Korea, *Letter of Intent* (Jul. 24, 1998), available at <http://www.imf.org/external/np/loi/072498.htm> (last visited Sept. 15, 2005).

⁶⁰ MOCIE, *supra* note 56.

⁶¹ James H. Williams & Navroz K Dubash, *Asian Electricity Reform in Historical Perspective*, 77 PAC. AFF. 411, 422-3 (2004).

⁶² LG Energy, *Restructuring of Electricity Industry*, available at http://lgenergy.com/english/enfuture/fut_01.htm (last visited Apr. 26, 2005)

⁶³ MOCIE, *supra* note 56; LG Energy, *Implementation of the Restructure — Phase 1 of the Restructuring Plan*, available at http://lgenergy.com/english/enfuture/fut_02.htm (last visited Apr. 26, 2005).

⁶⁴ MOCIE, *supra* note 56.

⁶⁵ MOCIE, *Jeollyeoksaneop Gujogaepyon* [Restructuring of the Electricity Industry], available at http://epic.kdi.re.kr/epic/epic_view.jsp?num=47000&menu=2 (last visited Oct. 18, 2005).

⁶⁶ MOCIE, *supra* note 56; LG Energy, *Implementation of the Restructure — Phase 3 of the Restructuring Plan*, available at http://lgenergy.com/english/enfuture/fut_023.htm (last visited Apr. 26, 2005).

⁶⁷ MOCIE, *supra* note 56; LG Energy, *supra* note 66.

stage would complete liberalization of the electricity sector, by extending consumer choice to every household after 2009.⁶⁸

However, the restructuring package for the electricity sector did not proceed as anticipated, except for the first several steps. Following the passage of a law in 2000 laying the ground for speedy restructuring,⁶⁹ KEPCO's forty-two generation facilities were regrouped into six generation subsidiaries in 2001, five fossil-fuel based ones and one nuclear⁷⁰: 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), and Korea Hydro and Nuclear Power Co. Ltd. (KHNP). Among these, KHNP was to be under KEPCO's control and not subject to privatization, mainly to preserve appropriate fuel portfolio, while the other five generation subsidiaries would be sold off and become fully separated from KEPCO. KPX and KOREC were both established in 2001 and began functioning as power exchange market and regulator, respectively.⁷¹ With regard to the sale schedule of these subsidiaries, government and KEPCO announced a plan in 2002 to put KOSEPCO on sale first through bids,⁷² which would be followed by the sale of the other four subsidiaries if the result was positive. However, the next step in the restructuring package, which is the plan to introduce retail competition in the sector, had been put on hold, as major fights continued from 2002 between KEPCO and labor union over the sale of the generation subsidiaries and the lay-offs that might follow.⁷³

In the meantime, Californian power crisis from 2000 shed light on the risks that liberalization process in the electricity sector could entail, such as defected market design and retained market power by generators.⁷⁴ The bankruptcy of Enron in 2001, then the biggest power broker in the United States, took place in the wake of the turbulence that swept the U.S. electricity market,⁷⁵ and numerous reports and investigations on Enron's failure revealed the irregularities at the Californian power exchange that were at least partly due to the erroneous market designs which allowed rigged bids to flourish.⁷⁶ What occurred in the aftermath of the Californian electricity crisis therefore placed more weight behind the voice of the critics, who argued for the reconsideration of the restructuring plan because of the fear that the promises of the restructuring

⁶⁸ MOCIE, *supra* note 56; LG Energy, *supra* note 66.

⁶⁹ *Jeollyeoksaneopgugjaebyeonchokjinekwanhaneopyeul* [Act on Promotion of Restructuring of the Electric Power Industry], Law No. 6282, Dec. 23, 2000.

⁷⁰ ASIA PAC. ENERGY RESEARCH CENTRE, ELECTRICITY SECTOR DEREGULATION IN THE APEC REGION 105 (2000), available at <http://www.ieej.or.jp/aperc/final/deregulation.pdf> (last visited Oct. 18, 2005).

⁷¹ KPX began operating on April 2, 2001, whereas KOREC was established on April 27, 2001. For more information on these institutions, see, e.g., Korea Power Exchange, *About KPX*, available at <http://www.kpx.or.kr/english/overview/page01.htm> (last visited Feb. 20, 2006); Korea Electricity Commission, *Establishment of KOREC*, available at http://www.leadernews.co.kr/korec_home/eng/sub01_1.htm (last visited Feb. 20, 2006).

⁷² MOCIE, *Recent Development in the Restructuring Process*, available at <http://www.mocie.go.kr/eng/policies/elec/elc2.asp> (last visited May 4, 2005).

⁷³ *Panel's Move a Blow to KEPCO Privatization*, FINANCIAL TIMES (London), June 2, 2004, at 19.

⁷⁴ TIMOTHY J. BRENNAN ET AL., ALTERNATING CURRENTS—ELECTRICITY MARKETS AND PUBLIC POLICY 46-58 (2002).

⁷⁵ Williams & Dubash, *supra* note 61, at 430-2.

⁷⁶ *Tapes Reveal Enron Took a Role in Crisis*, INT'L HERALD TRIB., February 5, 2005, at 12.

might not materialize.⁷⁷ At the same time, the foreign investment that had once played an active role in Asian electricity restructuring was also scaled back under the changed circumstances.⁷⁸ A series of failed auction attempts for KOSEPCO may have been due to such limited interest from potential foreign buyers,⁷⁹ and without doubt this also contributed to the delay in pushing through the reforms.

With the voices against the electricity sector restructuring growing, the government commissioned a group of scholars to report on the desirability of the restructuring package as contemplated in the Basic Plan.⁸⁰ The report came out in May 2004 and concluded that the split-up of the distribution sector should be halted, because of the changed market condition and the limited benefit that might come from the restructuring as a consequence.⁸¹ In the end, by the government's decision in June 2004, the split-up and privatization plan of the distribution sector was scrapped, with the inter-divisional competition suggested as an alternative to increase efficiency.⁸²

What brought the restructuring efforts to a halt may be explained in various ways, but the government's failure to effectively build consensus among stakeholders apparently made the reform package adrift.⁸³ While the government was unable to persuade electricity consumers to accept that the electricity rate might have to increase to cover continuous power supply expansion, long disputes between government, KEPCO and the labor union over job security were not resolved in a clear-cut way, which was serious enough to get the restructuring package stalled.⁸⁴ The ideological inclination of the new government, which came to power in 2003 and is hostile to neoliberal, market economy ideas, was also believed to have affected the process.⁸⁵ Whatever was the main culprit for the stalled restructuring, it is obvious that the Korean electricity sector will continue to be under the government's strong influence, which will make financing power source expansion and energy security as the most pressing concerns.

3.3 Implications for Climate Policy

What the restructuring process intended to achieve at the end was a fully functioning electricity market, where much of what government now does for the electricity sector would be replaced

⁷⁷ Byrne et al., *supra* note 32, at 510-2.

⁷⁸ Williams & Dubash, *supra* note 61, at 433.

⁷⁹ JCR, Affirmed A/Stable on Bonds of KEPCO, available at <http://www.jcr.co.jp/Edata/E13035.htm> (last visited Apr. 12, 2005); *Panel's Move a Blow to KEPCO Privatization*, *supra* note 73, at 19.

⁸⁰ Byrne et al., *supra* note 32, at 511.

⁸¹ Ji-Hyun Kim, *Panel Opposes KEPCO Split*, KOREA HERALD, June 2, 2004, available at http://www.lmg.go.kr/bbs/viewbody.asp?code=e_bbs42&page=2&id=16&number=16&keyfield=&keyword= (last visited Feb. 20, 2006)

⁸² See, e.g., Korea Tripartite Commission, *Resolution on the Split-up of Korea Electric Power Corp.'s Distribution Business*, June 30, 2004, available at http://www.lmg.go.kr/bbs/down.asp?code=e_bbs52&filename=Agreement%5Fp+distribution%2Edoc (last visited Feb. 20, 2006).

⁸³ WONHYUK LIM, JEOLLYEOKSANEOP GUJOGAEPYON: JUYO JAENGJJEOMGWA HYEONAN [Restructuring Electricity Industry: Major Points of Discussion and the Future Agenda] 54 (2004).

⁸⁴ Byrne et al., *supra* note 32, at 511.

⁸⁵ *Panel's Move a Blow to KEPCO Privatization*, *supra* note 73, at 19.

by market players who behave on price signals. If this process had gone on as planned, the government's grip on the electricity sector would have been made loose, allowing private participants to become active players in shaping out the landscape of the electricity sector. Now that the restructuring package has been put on hold and there is little possibility that efforts will be made any time soon to restart the restructuring, the government may well take similar responsibilities in the sector in the short to medium term as it has been.⁸⁶ The government's main role will continue to be providing stable and economic electricity supply, while guaranteeing energy security through orchestrating an appropriate fuel mix for the generation facilities.

An interesting question to ask under these circumstances is whether or not such a prospect for the future Korean electricity sector will have any relevance to climate policy. Given that Korea is not yet a party committed to mandatory GHG emission reductions, as well as that the Ministry of Environment is notably weak within the governmental hierarchy, it is unlikely that any significant policy shift will be made by the government to vigorously pursue climate policy goals. The picture might not be much different even if the restructuring effort had proceeded as planned. While many elements in the restructuring package might have worked in favor of climate-friendly power options such as combined-cycle gas-fired facilities, the extent of the fuel shift would not have been large enough to be called a major policy achievement. In any event, nuclear generation has increasingly been dominant in the national generation portfolio, and they have traditionally been dispatched for generation to meet the base load.⁸⁷ This may have effectively reduced the room for a large-scale change in fuel mix whatever had come out of the restructuring package. However, as the sector lost the best possible option to find a market-friendly solution to power shortage and energy security issues while also bringing out contingent climate benefits, the possibility has now become much bleaker for the Korean electricity sector to contribute to a global effort to fight climate change.

Meanwhile, one element within the restructuring package survived the backlash against the restructuring and arguably bears prospect for climate-friendly generation portfolio. With a view to diversifying fuel sources, the government set the goal for renewable energy to reach 5 percent of national energy portfolio by 2011.⁸⁸ Moreover, to facilitate the compliance with this policy objective, the government from 2002 set up the price subsidies for electricity generated from renewable sources, so that renewable generation facilities may better compete with those using other conventional fuels.⁸⁹ This has refreshed the interests from potential private participants abroad, and they have begun to seriously consider building up renewable generation plants or have already done so.⁹⁰ This new development will certainly help the electricity sector become "greener," but it remains to be seen whether such a drive for more renewable generation will

⁸⁶ Williams & Dubash, *supra* note 61, at 435.

⁸⁷ OECD, *supra* note 44, at 8.

⁸⁸ Int'l Energy Agency, *Mid- and Long-Term Goal of New and Renewable Energy Supply with Detailed Plan*, available at <http://www.iea.org/textbase/pamsdb/detail.aspx?mode=gr&id=1685> (last visited Feb. 20, 2006).

⁸⁹ Int'l Energy Agency, *Renewable Power Generation Subsidy*, available at <http://www.iea.org/textbase/pamsdb/detail.aspx?mode=gr&id=970> (last visited Feb. 20, 2006).

⁹⁰ German firms are keenly interested in this renewable subsidy, and have already set up wind farms and won contracts to build solar power plants. Ji-Young Choi, *German firms energizing Korea*, JOONGANG DAILY, November 24, 2005, available at <http://joongangdaily.joins.com/200511/23/200511232225389109900090609062.html> (last visited Feb. 20, 2006).

become a new trend, because much of the profitability depends on the government's subsidization which may well be reduced as renewable generation volumes approach a desired level.

As a conclusion it may be said that, as many potentially climate-friendly elements in the restructuring package have ended up not being implemented due to the failure to put political weight behind the restructuring efforts, the Korean electricity sector may remain irrelevant of climate change policy in the short- to medium term if no additional incentives are given to incorporate climate concerns. This in turn puts back into light the role of the government as potential impetus to lead a way towards a more climate-friendly future, but the question whether or not such an approach can be harmonized with the governments' two biggest sectoral concerns, economic and stable electricity supply and energy security, will continue to hang over the horizon.

4. CDMs' Implications for the Korean Electricity Sector and a Proposed "Less Strict Approach"

4.1 CDMs' Potential Benefits for the Korean Electricity Sector

In theory, CDMs could come into play where the stalled reform package in the Korean electricity sector has left off, with regard to providing climate-friendly electricity generation options such as power generation from renewable sources. As a hypothetical case, if a fuel shift project from coal to natural gas became qualified as a CDM, it could mean that the capital necessary for building power generation capacity would be provided through collaboration between foreign entities and domestic generation subsidiaries. This would serve the dual purposes of expanding the national generation capacity, as well as giving climate the benefit of GHG emission reductions through the use of less carbon in the generation process. In addition, some of the small scale power generation projects, such as photovoltaic and biomass fuel generation projects, could be registered as CDMs, as long as all the technical requirements are met. This would also bring back the interests of some foreign investors, as they could reap the double benefits from the authorized CDM projects in the form of revenues from the sale of electricity and the CERs. The end result would be the new inflow of foreign capital to build up national generation facilities, contributing to stable electricity supply and energy security by diversifying fuel mix within the sector.

However, as long as CDM approval process sticks to the strict interpretation of "additionality," the extent to which CDMs may encourage more climate-friendly power production would be limited, as the CDM Executive Board's tool for assessing additionality clearly illustrates.⁹¹ More specifically, in addressing the issue concerned, the Executive Board suggests five steps to evaluate whether or not a proposed project meets the additionality requirement. First, a proposed project activity should not be the only one available project under the current circumstance but must have alternatives that could work as baseline scenarios.⁹² Second, the proposed project

⁹¹ CDM-Executive Board, *supra* note 23.

⁹² *Id.*, at 2-3.

must pass the test of “investment analysis,” meaning that the proposed activity cannot be profitable economically or financially compared to other alternatives if the sales revenue of CERs are not taken into account.⁹³ Third, which is optional for the proposed project that has passed the investment analysis test, the “barrier analysis” standard must also be met to ensure that the proposed project activity is confronted with barriers that either prevent its implementation or allow other alternatives to take place.⁹⁴ These barriers are understood as adverse investment environment, insufficient technological capacity or prevailing practice unsupportive of the kind of the proposed activity.⁹⁵ Fourth, the tests above-mentioned should be complemented by “common practice analysis,” according to which similar activities to the proposed project should not be found for it to qualify as additional.⁹⁶ Finally, the approval of the proposed activity as a CDM and the benefits resulting from such approval, such as GHG emission reductions and attraction of new players and new technology, should feed themselves back to lower the economic and other barriers and allow the proposed project to take place.⁹⁷

Considering that GHG emission reductions from CDMs must be real and should not be a repackaging of what would have been achieved without the proposed activity, setting guidelines for determining additionality is a desirable as well as necessary task. However, the problem is that these guidelines are made out in such a strict fashion that they have the risk of excluding from the realm of CDMs many activities that will certainly yield benefits for climate. For instance, an intended investment from Annex B entities in a Korean generation facility that will be run by renewable sources may not qualify as a CDM, as it is unlikely to pass the alternative test because renewable generation would expand anyway along the government’s line of policy focusing on energy security and renewable expansion. Furthermore, such a proposed activity may fail the investment analysis test as well, because the proposed activity might become viable with the high purchase price that the KEPCO is required by law to pay. If the main purpose of this direct investment were to have the activity approved and registered as the CDM so that the Annex B investors could obtain CERs for their own use, this failure to pass the additionality tests would make the prospective foreign participants withdraw their plan altogether, and as a consequence the proposed activity would be scrapped or planned in other jurisdictions. Meanwhile, Korea would have lost a valuable opportunity to receive foreign capital and also to improve on more diverse generation portfolio, which may be frustrating for both development and climate perspectives.

4.2 Proposal for a Flexible Approach on CDM Approval Process

If promoting sustainable development is deemed as one goal of CDMs that must be pursuable to all developing countries without reference to their development stage, then it follows that CDMs should be structured in a manner to provide the same window of opportunities for advanced developing countries like Korea as they currently do for less advanced developing ones. Therefore, a less strict approach on the CDM approval process may be necessary as well as

⁹³ *Id.*, at 3-5.

⁹⁴ *Id.*, at 5-6.

⁹⁵ *Id.*

⁹⁶ *Id.*, at 7.

⁹⁷ *Id.*, at 8.

desirable. This is not to suggest redistributing CDM opportunities among developing countries, but rather to propose exploring more CDM options within advanced developing countries that could be readily available with the flexible interpretation of additionality, so that advanced developing countries could have more incentives to consider climate-friendly options by themselves.

First, if a proposed project activity is subject to other laws and policy that may have coincidental benefits related to GHG emission reductions, the strict test of alternatives should be interpreted in a flexible manner so as to approve the activity as the CDM. In the context of the Korean electricity sector, the best possible candidate for such exceptional treatment could be building renewable-based power generation facilities with the help of foreign investment from Annex B country entities, even if such renewable generation would be supported by governmental subsidization with a view to diversifying generation sources.⁹⁸ The rationale behind this exemption is that it would be extremely difficult to differentiate domestic policy purposes from those of climate policy, even if the climate benefits could be viewed as incidental. By allowing certain climate-friendly generation projects to stand as CDMs, more attention could be brought to climate-related goals in the sector even as the country itself is not under any mandatory GHG emission reduction target, thereby stimulating more exploration for other CDM opportunities in this sector.

Second, the investment analysis test should also be relaxed to give a proposed project activity CDM status as long as it yields real and measurable climate benefits, even if the project itself would be commercially viable under the specific economic conditions without CERs. As developing countries are in urgent need of financial resources to push ahead with economic development, letting foreign investment in the project in exchange for opportunities to obtain CERs would ensure that sustainable development concerns are duly taken care of, while the host developing countries may benefit from having the desired industrial facilities with less capital cost than it would take without the CDM approval. Then the host developing countries could use the spared financial resources for addressing other concerns that may be indirectly related to climate policy, such as R&D on fuel efficiency. The key here is to allow Annex B investment in climate-friendly projects and give credits for it even if these projects are likely to survive without having them registered as CDMs.

It is notable that the CDM Executive Board confirmed that the use of the tool for assessing additionality is not mandatory and project participants are free to propose their own methodologies for establishing additionality.⁹⁹ If this could be seen as the recognition even by the CDM Executive Board that a more lenient interpretation of additionality would help disseminating CDMs among more developing countries, it would be in line with the main argument of this paper. Such relaxations on additionality tests could constitute a good start towards shifting a sectoral emission baseline downward, as this newly added incentive for climate-friendly technologies and facilities would help building more of the kind, in anticipation of acquiring CERs in due course. Only then may CDMs be called as a truly useful device in assisting Annex B countries in achieving their emission reduction commitments, while helping non-Annex B developing countries attain sustainable development goals.

⁹⁸ Int'l Energy Agency, *supra* note 89.

⁹⁹ *COP/MOP Report*, *supra* note 14, at 6.

5. Conclusion

This paper has mainly concerned itself with how to make CDMs more appealing to hosting developing countries, to foster an environment in which the developing countries may feel it comfortable to pursue GHG emission-limiting activities in the hope that such activities will be helpful as well as profitable. To bring home such an agenda, this paper has taken the Korean electricity sector as a case study which illustrated the inconsistencies between the ideals of CDMs and the CDM's failure in reality to duly accommodate concerns of advanced developing countries. The proposed approach, which is less strict in interpreting additionality under the Kyoto Protocol article 12, would serve as stimulant in making CDM activities easier to set up and welcomed within hosting advanced developing countries, with the consequence of contributing to global fight against climate change. Furthermore, this approach could also be generalized and applicable to other less developed countries situated in the lower spectrum of development, as they go up the development path of their own and face the same package of concerns as Korea now does.

This does not mean that allowing a less strict approach on CDM approval process is the only way to make CDMs more palatable, however. Unilateral CDMs, which allow non-Annex B countries to invest in sustainable development projects within their own territories and acquire CERs out of the projects, could be another possible option to consider.¹⁰⁰ Programmic/Sectoral CDMs, in which governments of developing countries set national programs in industrial sectors to pursue climate policy objectives and receive CERs for the amount of GHG emission reductions, could be another way to incorporate climate concerns into developing countries' policymaking.¹⁰¹ Although it is outside the scope of this paper to go deeply into these other options, they may increasingly become an interesting topic to look into over time.

¹⁰⁰ See, e.g., Lavanya Rajamani, *Kyoto to Buenos Aires, Bonn and beyond*, available at <http://www.cru.uea.ac.uk/tiempo/floor0/recent/issue33/t33a5.htm> (last visited Feb. 20, 2006).

¹⁰¹ For more information on programmic/sectoral CDMs, see INT'L ENERGY AGENCY, BEYOND KYOTO — ENERGY DYNAMICS AND CLIMATE STABILIZATION 97 (2002); José Luis Samaniego & Christiana Figueres, *Evolving to a Sector-Based Clean Development Mechanism*, in BUILDING ON THE KYOTO PROTOCOL — OPTIONS FOR PROTECTING THE CLIMATE 89 (Kevin A. Baumert et al. ed., 2002).

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