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JAPANESE ENERGY SECURITY AND CHANGING GLOBAL ENERGY MARKETS:
*An Analysis of Northeast Asian Energy Cooperation and Japan's Evolving
Leadership Role in the Region*

TRENDS AND PROSPECTS OF DEREGULATION IN JAPAN

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Introduction

This paper will address the impact deregulation in the petroleum industry in Japan will exert on energy security in Japan and other Asian nations. Many theorists have argued that liberalization and deregulation do not benefit but rather adversely affect security. They often argue that we should not allow the market to have complete control. Rather they assert that the government must maintain certain regulations with concern to petroleum because petroleum is not an ordinary commodity like automobiles or personal computers but it is, so to speak, one of the strategic commodities.¹ In fact, the argument goes that it appears easier to rationalize certain regulations or control by the government or international cooperation (G8) on commodities such as energy, food or currency in view of ensuring stability. And, market failures do take place, arguing against the benefits of a market orientation.

However, does assigning greater roles to the market by liberalization or deregulation pose a security risk as insisted in the conventional arguments? If a market is an arena of transactions between supply and demand forces, or sellers and buyers, through pricing, certain force to continue such transactions might naturally be generated between the parties. Ensuring food self-sufficiency might be a realistic issue in Japan, but the same does not necessarily apply to petroleum. Furthermore, how far can we justify increasing expenditures to raise the self-sufficiency rate, more specifically, the cost incurred by securing our state-owned crude oil sources, increasing storage or further promoting nuclear power? Would it not be better to assign certain roles to the market if the cost incurred by government control is excessive compared to control by the market? Regulations would require additional costs to secure development of state-owned crude oil reserves, increased storage for emergencies or increased subsidies to promote nuclear power. The market might commit market failures as a matter of course. But, there is also the risk that government policy might similarly fail by creating problems of

inefficiency.

This paper defines the significance and limitations of deregulation by reviewing the conventionally persuasive arguments of ensuring security by regulations. It also considers the relative contributions of liberalization and deregulation to enhanced security, instead of simple extreme alternatives of either complete regulation or complete liberalization. The paper also reviews the effects of deregulation on the petroleum industry and energy security in Japan and Asia.

Military Security and Economic Security

Energy security may roughly be divided into two categories: military security and economic security. There is also a concept of comprehensive security but since it may be regarded as a combination of military security and economic security, the military and economics are the fundamental elements of security.

Military security is the most fundamental element in ensuring security. Order and safety depend on military forces. The state has been the basic foundation of the military, but the roles of the international military structures are on the increase as seen in the actions of NATO forces or multi-national forces. Since the end of the Cold War, the position of the U.S. military seems to have been elevated in the international military structure. Such formation of order and maintenance of security by the military enable liberalization and deregulation in the economic markets on the global level.² Military security can be regarded as a prerequisite to economic security. Although arguments on ensuring security by the military have traditionally dominated, arguments on ensuring security through economic arrangements (e.g. role of WTO) gradually gain strength as seen in the emergence of interdependence theory as discussed later.

The framework of the Japan-U.S. security treaty is the major premise of the military

security to ensure energy security in Japan. Other Asian nations in alliance with the United States have signed similar treaties. However, no multinational military alliance exists in Asia that is comparable to NATO. Each nation has an individual military treaty with the United States. The peculiar characteristic of the military security of Japan is a significant restriction on Japanese military forces. The Japanese constitution limits military power only to the Self-Defense Forces, which nevertheless possess large military power. The use of the military power has become difficult in the increasingly interdependent world as discussed later.

Japan is the largest client for the Persian Gulf countries because Japan is the major importer of crude oil. If Japan decides to import crude oil from other sources or shift to alternative energies, it would mean a loss of the largest client of the Persian Gulf countries. Similarly, if the Persian Gulf countries decide to refuse export of petroleum to Japan or raise prices, it would mean Japan would lose its major supplier of oil. If, however, the market functions properly, other nations outside the Middle East would try to sell petroleum or offer lower prices to Japan, or Japan would shift to the use of more cost-efficient alternative energies (natural gas, nuclear power, new energies, coal, etc.). Therefore, it is important to ensure that the petroleum and other energy markets can remain stable and reliable to ensure energy security in Japan.³

In the same argument, Mr. Tsutomu Toichi expresses that "security of demand is as important for the petroleum exporting countries as security of supply is important for the consumer countries."⁴ These arguments typically express that the market influences security. Maintenance of healthy petroleum and other energy markets ensures the security of energy supply in Japan.

Limitations of Interdependence Theory

What is the position of economic security theory? It would probably be positioned as an interdependence theory in political science and comparative advantage theory in economics. If,

however, the interdependence theory is interpreted in a broad sense that contains the comparative advantage theory, the theoretical characteristics of the economic security might be understood by studying interdependence theory.

Mr. Yoshinobu Yamamoto describes the characteristics of interdependence theory in the international political science as follows by introducing the works of Robert O. Keohane and Joseph S. Nye, Jr. Keohane and Nye define the interdependence as "interdependence means reciprocal dependence in the simplest definition. Interdependence in the world politics refers to the condition characterized by the reciprocal impacts among the nations or actors that belong to different nations. Such (reciprocal) impacts are often provoked by international transactions of exchanging money, commodities and people beyond the borders."⁵ They analyze the impact of interdependence on balance of power relations in the international politics and the operations of the "regime" that rule interdependence.

Growing interdependence among countries alters the traditional view of international politics. Interdependence theory suggests "relations among nations can be a positive sum game where all nations can profit from free economic exchange, which replaced the traditional concept that the international politics is fundamentally a zero sum game among nations."⁶

Realists believe that the dominant objective of a nation is military security, and the most effective means to achieve this objective is military power. They insist that the agenda to be solved by a nation are determined and changed by the changes in the balance of power and changes in military strength. They also believe that nations with stronger militaries tend to be more adventurous in international politics, and therefore the formation of the international strata is propelled along the distribution of the military power. The role of international organizations is relatively minor.⁷

Contrary to the realist school, the complex interdependence defined by Keohane and Nye

has three characteristics. Firstly, nations are linked with relations among bureaucrats, civilian groups and other diversified channels across borders. Second, the agenda in the international relations consist of various issues, and there is not necessarily any apparent or constant strata among these issues. Therefore, military security does not constantly dominate the agenda of the nations and international politics. Many issues more frequently emerge from those that used to be considered as domestic policies, which makes the distinction between the domestic policies and diplomacy less apparent. Finally, where "complex interdependence" dominates, generally governments do not threaten other governments with the military power. Military activity is restricted to other forums. For instance, although military power is inappropriate for solving economic conflicts among allied nations, it might be extremely important in the political, military relations against an enemy bloc. This is because while the conditions of the complex interdependence are satisfied in the former, no such conditions exist in the latter.⁸

Establishment of a "regime" has been planned for the possible future issues. The issues are diverse and are characterized by a branch structure.⁹

The progress of interdependence has generated new forces not based on military power.¹⁰ Keohane and Nye called the sources "vulnerability" and "sensitivity." The author shall study only the former, as the space is limited. "Vulnerability" is the "degree of the damage incurred when interdependence is severed." For instance, as Japan is more deeply dependent on the Middle East and other exporting countries for the petroleum supply than the United States, the vulnerability is larger when the petroleum producing countries ban or limit the export of petroleum.

When "vulnerability" is the source of political power in the interdependent world, one of the strategies of a nation is "to reduce its (relative) "vulnerability" to related parties and to heighten the others' "vulnerability" to itself." In the case of petroleum, it would mean to diversify or decentralize the sources of dependency or further strengthen the interdependence so that the other

parties' dependence to itself and resulting "interdependence" is heightened. The United States adopted the "project independence" to reduce its vulnerability to the petroleum producing countries by increasing its energy self-sufficiency at the early stage of the first petroleum crisis. However, gradually it shifted toward "project interdependence" to raise the dependence of the Arab countries on the United States through cooperation in development and "accepting" the oil money as a means to "symmetrize" the "vulnerability."¹¹ It is an interesting question to study why this change in strategy occurred, but no interpretation has been given. One of the possible reasons might be the gradual realization of the difficulty of the "project independence."

There is another strategy to "organize" the "vulnerability" of nations as seen in establishment of the Organization of Petroleum Exporting Countries (OPEC) by the petroleum exporting countries and its countermeasure International Energy Agency (IEA). As the demand for petroleum actually expands along the rapid economic growth in Asia, it would be necessary to establish an "Asian version of IEA."^{12,13} Such an organization could reinforce and strengthen the Asian use of petroleum storage during a supply emergency. It might be necessary to create the "Asian version of IEA" under the leadership of Japan, where Japan is to release its storage in order to ensure energy security in Asia.

If emphasis is given only to promotion of "vulnerability" generated by interdependence and the resulting "weakening" of the political powers, nations would rush to self-sufficiency, and interdependence would recede as a result. Rather, the world could look like that postulated by security-based theory of balance of power among nations. However, orientation toward self-sufficiency would diminish opportunities for advancement of common interests that come along with the progress of interdependence. At the same time, it is dangerous to overestimate "vulnerability." This is because progress of interdependence would expand the transnational network and generate alternative solutions.

So far, the paper discussed the significance of the interdependence theory, but what are its limitations? First, while the interdependence theory arises from positive-sum transactions of money, commodities, people and information across borders, there seems to be little interest in issues such as rules for global transactions, punishment or compelling force to the violators of the rules. It would be necessary to consider the issues such as who (states, "regime" or multilateral institution) gets to set or apply the rules, and who possesses or decides to execute the military power as the ultimate compelling force. (Note: short of military power, there are many organizations enforcing international law including The International Court in the Hague, WTO, IMF, international patent and trade marks, INTERPOL, etc.) How would the interdependence theorists "manage" the conditions when a certain nation takes political or strategic actions and damages the overall interest of the international society?¹⁴ Second, while the interdependence theory indicates that global expansion of the economic market would reduce the role of the states, it does not define what is left for the states to control (Answer: everything not covered by international obligation of the country concerned). Although the interdependence theory emphasizes the international organizations, "regimes," non-government organizations (NGO) and non-profit organizations (NPO), it does not sufficiently define the roles of the states. Third, it gives insufficient consideration to the relation with security. There is an impression that the interdependence theory does not clearly indicate whether it has any affect on security or not. Recent studies, however, show that nations with larger degree of interdependence (dependence on others) are less likely to engage in wars, and some studies show that democratic nations are less probable to engage in wars than non-democratic nations.¹⁵

As the powers of the state get progressively limited by growing interdependence, at some stage one may reach a stage of a "naked nation."¹⁶ As interdependence proceeds or is promoted, a nation will "abolish" tariffs and other border control measures and "implement" other policies to

enhance cooperation among governments.

As shown in Table 1 (see appendix), in the interdependent world, some functions of the state decline (iii) and others in (ii) and (I) increase. As interdependence progresses, (a) border control measures are relaxed, and (b) policies and (c) systems become targets of cooperation. Therefore, with progressing interdependence, core functions left for the state are limited to control of entry, social welfare policies, tax systems, currency issuing and similar fields. The tax system, however, cannot be decided by the convenience of one nation because if tightened, enterprises would relocate to counties with more favorable tax system.

How about energy policies in the interdependent world? In view of new pressures for energy security in Asia, Japan can no longer decide for its own convenience. Energy policies require cooperation with IEA and other Asian countries. In table 1, industrial policies are listed under "abolition," but it would be difficult at the present stage to abolish agricultural policies as seen often in the EU, where the issue of abolition of agricultural subsidies is controversial. It is certain, however, that energy industry policies and petroleum industry policies are not decided by convenience for one nation but are becoming a subject of international cooperation as interdependence progresses. Generally speaking, it is certain that as interdependence proceeds, a state will gradually become "naked" and the role of international cooperation gains in importance.

Interdependence theory appears substantiated by global economic trends. It contrasts with the traditional, "realist" theory of balance of power, which offered a conflicting hypothesis for military security theory. It seems that the confrontation between the theory of interdependence and the theory of balance of power is a confrontation between the (neo) liberalism and (neo) realism. The objective of this chapter is to study the affects of deregulation on energy security, and the theory of interdependence offers the theoretical foundation for such study. However, as we have shown, it is not desirable to take a stand either unconditionally endorsing a position derived from

either the liberal (interdependence theory) or realist (balance of power) point of view. Rather, the objective is to develop a balanced argument from the standpoint of more trust on economic security than most conventional arguments. In other words, this paper intends to positively evaluate the significance of enlarging interdependence theory based on the traditional theory of balance of power of nation states with due consideration to its limitations.

Petroleum Industry Deregulation

The market has come to play a more important role not only in the petroleum field but also in the natural gas and electric power industries as well to replace the government or monopolizing enterprises through deregulation. Mr. Edward Krapels, president of ESAI (Energy Security Analysis Inc.) insists that the changes in the petroleum industry can be expressed as follows in view of energy governance.¹⁷ In the period from 1945 to 1967, the international major oil companies had extremely strong influence over the international petroleum market, but from 1967 to 1973, their power weakened. From 1973 to 1980, OPEC had the strongest influence and control, but from 1981 to 1986, OPEC weakened. Since 1986, the era of the market has continued up to now. The era of the market may be the era of deregulation. It should be noted, however, that Mr. Krapels's analysis concerns the international petroleum market, not the Japanese petroleum market.

Table 2 (see appendix) shows country comparison concerning the recent liberalization in the energy market. It indicates that the electricity industry is either still regulated or in the process of being liberalized in many countries. As far as liberalization of the electric power is concerned, the United States and Canada still lag other countries in deregulation policies. The advanced nations and nations rich with resources seem to be comparatively more advanced in liberalization.

Liberalization of petroleum and natural gas industries in the downstream divisions is also

a global trend. The United States, United Kingdom, Australia and Germany were among the first to liberalize and all but Germany are producers and consumers of hydrocarbons. Belgium, France, Italy, Netherlands, Spain, Russia, Kuwait, Japan, Singapore, Argentina and Canada, which are proceeding with liberalization at the moment, are privatizing national corporations and breaking up monopolies, and deregulating price setting, supply and demand and trade. Those where liberalization is still at the planning stage are China, Indonesia, Brazil, Venezuela, Mexico, etc.

Table 3 (see appendix) shows the status of liberalization in the downstream divisions of petroleum and gas in Asia. Japan is advanced in deregulation in Asia. This region may be divided into two categories, those with strong central government intervention such as China and Indonesia and those who are deregulating including Japan, Singapore and Korea.¹⁸ The downstream divisions of the petroleum industry in Japan are managed by private enterprises. The major issue is deregulation with the administrative guidance and relevant laws because there still remain regulations on market entry, price setting, supply and demand, trade, etc.

Deregulation in Japan is progressing in three stages. Figure 1 (see appendix) shows the status of deregulation in Stage 1 and Stage 2, from the second half of 1980s to present. It indicates that regulations have been lifted for peacetime, with some regulations remaining for emergencies. In other words, the remaining regulations concern the maintenance of the so-called crisis management. This concept is based on the outlook (see Table 4 in appendix) for the possibilities of recurrence of stoppage of supply (stoppage of supply of approximately 2 to 5.5 million barrel a day in 4 to 7 month period) as experienced in the three petroleum crises (the first and second petroleum crises and the Gulf War).¹⁹ The possibility of a supply emergency has justified the control and regulations of the supply and demand as well as the price in accordance with the two petroleum related laws, and requires certain restrictions and subsidies for crude oil storage and petroleum development. Although the Article 1 of the Petroleum Business Law enacted in 1962 stipulates

that the objective is "to ensure stable and inexpensive supplies of petroleum by making adjustment to the business activities of petroleum refining, etc.", its application actually focused on stable supplies. Therefore, Article 1 of the law intended to balance stability and efficiency of supply.

The first stage deregulation (July 1987 to March 1993) was implemented during a period of drastic yen appreciation that followed the Plaza Accord and increased pressure from the United States to open up the Japanese market. It was confined to deregulation of administrative guidance during peacetime. Regulations on facilities, supply and demand, physical distribution, trades, etc. were implemented.²⁰

In the second stage (April 1996 to April 1998), physical distribution and product trade were liberalized to enhance international competitiveness. The main feature included abolition of the Special Petroleum Law, amendment of the Petroleum Storage Law, consolidation of the Volatile Product Sales Law with the Quality Assurance Law.²¹

The third stage is planned for implementation after 2001. Responding to pressure by the United States and OECD, Petroleum policy will be reviewed and further liberalization is expected. Although the Petroleum Industry Law will remain, the supply-demand adjustment and price regulations will be abolished. The remaining regulations will mainly concern the emergency measures, storage policy and upstream development policy. Figure 2 (see appendix) summarizes the interim report of the Petroleum Council in June 1998 that decided to review overall petroleum policies.

The Petroleum Industry Law would remain in effect during the review on the petroleum policy. The review seems to leave certain issues unsolved in view of the principle of freedom at peacetime and regulations at emergencies. In that sense, deregulation in the third stage will mean "relaxation," not "abolition" of regulations.

There is also a problem of "re-regulation" where privatization or deregulation might

cause establishment of a new regulation as seen in the privatization process of the former Telegraph and Telephone Public Corporation and other cases criticized by the United States. At abolition of the Special Petroleum Law in the second stage, the Volatile Oil Sales Law was incorporated into the Quality Assurance Law, and a new storage regulation was additionally imposed on the product importers.

Based on the concept of interdependence, stability in the international petroleum market is essential for economic security. Thus, an emergency management system must be established to counter short-term market disruptions. Leaving the market alone in peacetime by deregulating would imply that regulations should be limited to measures dealing with market disruptions. Market failures generally concern --imperfect competition, public goods, and externalities, (uncertainty is not a reason for market failure, anyway, risk and uncertainty should be treated separately).

Typical examples of imperfect competition are the electricity and the transportation industry. The monopolistic character of these industries justifies government regulation, for example, to ensure optimal investment and price level. In the petroleum industry, the approval system for the refining facilities might be justified on similar grounds. It seems that in view of the relation between market competition and security, a more important issue is to ensure international competitiveness among oil companies.

The typical examples of public goods are national defense and lighthouses. Although petroleum is generally considered a standard commodity, sometimes it is treated as quasi-public because it is an energy resource with similar characteristics to food, finance, education, housing and medicine. A typical example of externality is air pollution. The market does not necessarily create the socially optimum situation with due consideration to social convenience or social expenditure. Environmental regulations for the petroleum and other energy industries may be

justified from this viewpoint. Deregulation should be understood as a change that improves the functioning of the market, while containing negative side effects such as externalities.

There is an important point to consider in studying the relation between deregulation and energy security. As a result of higher competition in the petroleum industry by deregulation, restructuring of the industry will voluntarily take place. It will propel the competition even further, and weaker companies will be weeded out. The surviving stronger companies will grow larger, become more efficient and internationally competitive. Mergers and acquisitions in the petroleum industry today seem to prove this point.

The shift of the conventional regulatory policy of the petroleum industry to deregulation policy by the Agency of Natural Resources and Energy of the Ministry of International Trade and Industry might have been intended to promote restructuring through deregulation. They seem to entertain the idea to strengthen international competitiveness by restructuring major enterprises in the industry while ensuring energy security in Japan. This idea is similar to the so-called new industry system theory intended to liberalize trade and foreign exchange in the 1960s. In other words, the rationale for deregulation is close to the political intention of the Bureau of Business Enterprises (former Industrial Policy Bureau) that prepared a special promotion bill to materialize the new industry system theory. The special promotion bill stated that it is important to enlarge the scale of enterprises in order to strengthen their international competitiveness. It was intended to prepare various incentives through financing and tax relief, to formulate an agreement called the cooperation between the State and people, and to actively promote mergers.

The current government policy for the petroleum industry shares the objective of the bill to restructure and to consolidate the industry and thus enhance international competitiveness

Emergence of internationally competitive petroleum companies is favorable. emergence of a monopolizing company would not only damage the consumers' interest but also raise the risk and

the cost of ensuring energy security. This is because the monopolizing company would control petroleum supply. Should this happen, deregulation would become a double-edged sword for security. It is necessary to consider the cost and risk of deregulation in addition to the cost for regulation and security.

Following the petroleum industry, deregulation is also under way in the Japanese electric and natural gas industries. Reorganization and integration are expected throughout the entire energy sector including the petroleum industry as deregulation in the electric and gas industry proceeds. As a result of liberalization of the wholesale electricity supply business to allow Independent Power companies (IPP) by the amendment of the Electric Industry Law in 1995, some petroleum companies have diversified into electric power. This is a global trend. It is highly likely that Enron and other foreign enterprises will advance into the electric market in Japan. It would be necessary to analyze the affects of such movements on the energy security in Japan.²² It could be that foreign enterprises may obstruct stable energy supply in Japan. In the petroleum industry so far, foreign and domestic has been divided equally, and petroleum supply has been stable. The responsibility for maintaining stable supply during emergency should be allocated equally regardless of the origin of ownership whether it is national or foreign.

Effects of Deregulation

According to a long-term energy demand forecast by the Advisory Committee for Energy (June 1998), petroleum will remain Japan's major energy source in the 21st Century. Petroleum share in primary energy area will decline from 55.2% in 1996 to 51.6% in 2010 or to 47.2% in the case of more proactive government intervention. Forecasts show that the energy use pattern will not change significantly by deregulation.²³

According to the outlook for domestic demand for petroleum products (supply plan for

FY99), gasoline demand will increase from 23.4% to 24.7%, the four middle products (jet fuel, kerosene, distillate and fuel oil) will remain at 44.2%, and heavy oil will drop from 14.2% to 13.1%. It is expected that preference for lighter petroleum products will increase as a result of lower price of gasoline due to deregulation.²⁴

In conclusion, this paper discusses the evaluation criteria for deregulation. The concept of energy governance offers a fresh viewpoint to evaluate energy issues. At government level, governance refers to the structure of the decision-making where decisions appropriately reflect the interest of the taxpayers and ordinary citizens. It is analogous to corporate governance where management decisions reflect shareholder interest. The concept of corporate governance played a significant role in criticizing the conventional situation where decision making of the corporate management had focused on the interest of the managers and employees and ignored the interest of the shareholders. In governance by government, the viewpoints of taxpayers are emphasized and monitoring of the bureaucratic system, administrative evaluation and policy evaluation carry greater importance.

The concept of energy governance focuses on energy administration policies. It intends to shift emphasis to the interest of consumers away from those of the producers and the bureaucratic system that had been granted large consideration in conventional energy policies. This concept is beginning to permeate into a number of policy fields. Recent arguments on civil service reform follow the same direction. This is expressed as "from the central government to the regions and to the people," or "rehabilitation of politics." It is intended to devolve more responsibility to local government.

The problem is how to evaluate deregulation from the viewpoint of energy governance and how to evaluate energy security in the process of deregulation. Interestingly, in line with the interests of consumers and ordinary citizens, it is significant that deregulation has reduced gasoline

and kerosene prices to international standards. However, after-tax gasoline prices in Japan are still higher than in other countries. Lower prices mean lower profits for producers. Normal profits of the petroleum companies have considerably deteriorated since deregulation and especially since the second wave of deregulation measures. This fact seems to lead to weeding out of the companies with bad results. Stronger companies are acquiring smaller ones. Reorganization of the petroleum industry is under way. Four groups are emerging from the restructuring and consolidation process, namely (i) Nisseki Mitsubishi and Cosmo, (ii) Esso and Mobil, (iii) Japan Energy and Showa Shell, and (iv) Idemitsu. It is uncertain if this process will ultimately lead to an emergence of internationally competitive petroleum companies, enhancing energy security in Japan. However, there is no sign of monopoly power.

The danger to favoring the interests of consumers is that consumers and ordinary citizens are not necessarily concerned with long-term outlook in the energy sector but can be shortsighted. With the concept of energy governance, consumer opinion tends to carry heavier weight at the stages of planning, implementation and evaluation of energy policies. However, consumers would be shortsighted were they to focus only on ways to reduce energy prices.

Conclusion

Wise energy policy calls for long-term outlook on changes in primary energy sources --not to mention "grand national policy on a long-range basis." Long-term planning is necessary even if it might cause new regulations or be used to justify administrative discretion.

It is important to abolish supply/demand adjustments. Better governance should shift emphasis from regulations and administrative discretion to enhancing the role of the market while dealing with negative side effects (e.g. externalities). Nevertheless, the supply/demand adjustment will remain important during emergency. It is important that the government has strengthened

environmental regulation on petroleum products and put in place measures to handle emergencies. These policies are related to the expected rapid increase in petroleum demand to accompany future economic development in Asia.

Endnotes

¹ For example, *Sekiyu no Tokushusei to Anzenhoshō ni kansuru Chosakenkyū Hokokusho (Report of Investigation and Research on Special Nature of Petroleum and Security)* (Petroleum Energy Center, 1996) is an excellent report on the special nature of petroleum, stable supply of petroleum and market failures, various petroleum policies (laws, budgets, energy conservation, alternative energies, new energies, development, storage, and economic cooperation of petroleum producing countries), refining at consumption area system and emergency countermeasures, but it does not cover deregulation.

² Amy Myers Jaffe and Robert A. Manning, "The Shocks of a World of Cheap Oil," *Foreign Affairs*, Vol. 79, No. 1, January/February 2000, pp.16-29. This essay has been written for the readers in the United States, and the arguments may not necessarily apply to Japan.

³ This argument is closer to the critic Mr. Keitaro Hasegawa's. For example, Keitaro Hasegawa, *Johō Ryoku (Information Power)* (Sunmark Publishing, 1997)

⁴ Tsutomu Toichi, "Energy Security and Tasks of Japan in the 21st Century" (*Kokusai Mondai (International Issues)*, No. 476, November 1999), p. 28.

⁵ Yoshinobu Yamamoto, *Kokusaiteki Sogoizon (International Interdependence)*, (Tokyo University Press, 1989), p.21

⁶ IBID p.21

⁷ IBID p. 22

⁸ IBID p. 23

⁹ Yamamoto op cit

¹⁰ Yamamoto op cit

¹¹ However, there is a report that implies the strategy of the United States is still "project independence" or self sufficiency (by economic bloc). For example, it was a topic at the Petroleum Council that Mr. William F. Martin, former Vice Secretary of the Department of Energy said to the effect that "the focus of the foreign policies of the United States has been global activation of the energy industry. The major aims for establishment of NAFTA were the natural gas in Canada and crude oil and natural gas in Mexico." Shigeo Uchida, "Energy Security and Policy System in Japan" (*Kokusai Mondai (International Issues)*, No. 476, November 1999), p. 55.

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¹³ Tsutomu Toichi, *op cit* p. 33

¹⁴ Mr. Yoshinobu Yamamoto said the issue of how to ensure the interest of the entire international society when each nation tries to conduct its own actions rationally is the "management" issue of interdependence. There are four styles of the "management" of interdependence, namely by the hegemony, by "Regime", by political cooperation and by interdependence, and the management actors have changed from hegemony and "regime" to political cooperation and interdependence. Yamamoto, *op.cit.*, pp.5-6

¹⁵ Yamamoto, *op cit* p.57

¹⁶ *Ibid* p.177-85

¹⁷ Edward Krapels, "Changes in International Energy Market and Japan's Challenge," *Henbo suru Nihon no Enerugi Shijo to Aratana Keiei Senryaku: 21 seiki ni okeru Nihon no Enerugi Sangyo no tameni (Changing Energy Market In Japan and New Business Strategies: For the Japanese Energy Industry in the 21st Century)*, (Mitsubishi General Research Institute, Earth Environment Research Center, Energy-Environment-Initiative, ESAI, 1998,) p.15. Mr. Tsutomu Toichi shares the same historical understanding. The changes in the leadership as the manager of the international petroleum market were characterized as the "era of the Majors" up to the 1960s, the "era of OPEC" from the end of the 60s to early 80s, and the "era of the market" from the late 80s to present. Tsutomu Toichi, *op.cit.*, pp.25-37.

¹⁸ There is, however a report that there is a possibility of drastic liberalization in Indonesia. Tsutomu Koyama, "Keizai Kiki to Ajia Sekiyu Shijo (Economic Crisis and Petroleum Market in Asia)," (*Kokusai Enerugi Doko Bunseki (International Energy Trend Analysis)*, No.252, January 1999,) pp.61-67. See *Gekihen suru Ajia Sekiyu Shijo (Asian Petroleum Market Under Drastic Changes)*, (Okurasho Insatsukyoku (Printing Bureau, Ministry of Finance), 1998) for the petroleum markets in Asia and the Asian market strategies of the Majors and the Asian national petroleum corporations. Also see *Ajia Sekiyu Mondai Kenkyukai Hokokusho (Asian Petroleum Issue Study Group Report (II))*, (Heisei 9 nendo Sekiyu Sangyo Taisei to Chosa Kenkyu: Wagakuni Sekiyu Kigyo no Ajia Tenkai no Kanosei ni kakawaru Chosa (Research on Petroleum Industry System for 1997: Research on Possibility of Development of Japanese Petroleum Companies in Asia,)) (Petroleum Energy Center, 1998.)

¹⁹ Tsutomu Toichi, *op cit*, p. 29-31

²⁰ See Kosuke Oyama, *Gyoseishido no Seijikeizaigaku (Political Economics of Administrative Guidance)* (Yuhikaku, 1996), Chapter 8 for the first stage deregulation.

²¹ See Kosuke Oyama, "The Policymaking Process behind Petroleum Industry Regulatory Reform," in Lonny Carlile and Mark Tilton, *Is Japan Really Changing Its Ways?* (Washington,

DC: The Brooking Institutions, 1998), Chapter 8 for the second stage deregulation.

²² Terence Thorn(vice-president of Enron) and John Emerson (president of Enron), "Liberalization of Electricity and Gas Industries: New Strategy for New Change," (*Henbo suru Nihon no Enerugi Shijo to Aratana Keiei Senryaku (Changing Energy Market in Japan and New Business Strategies)*, Mitsubishi General Research Institute and ESAI,

Denryoku Baisyu Sodo (Strife at Purchase of Shikoku Electric Power Company by Enron of the US that Shook the Electric System by 9 Companies)," (*Gekkan Keiejuku (Business Academy Monthly)*, May, 1999,) pp.58-61.

²³ Yoshiki Ogawa, "Sekiyu Sangyo no Gaiyo to Sekiyu Shijo no Doko (Outline of Petroleum Industry and Trend of Petroleum Market)," (Dai 12 kai Enerugi Kiso Koza Tekisuto (Text No. 6 for the 12th Basic Energy Lecture), Japan Energy Economics Research Institute, September 8, 1999,) pp.13,16.

²⁴ Ibid, p. 14