

## The Possibility of Construct Energy Security Regime – Analysis from the Rational Design of International Institutions

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### Abstract

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Energy security becomes the one of the most important issue in IR. It includes how to acquire and distribute it, maintain its transport security, and the research about new energy. I try to use the rational design of international institutions about the membership rules, scope of issue covered, centralization of tasks, rules for controlling the institution, flexibility of arrangement and international socialization approach to explore the possibility of energy security regime.

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**Keyword:** energy security, international institutions, international socialization, power factor, interest factor, knowledge factor

Institution design matters. International institutions are the focus of international relations. We study international institutions because we are interested in understanding world political orders which includes international trade, international debt, financial system restructuring, and international security institution. Conflicts among nations so cooperation are particularly in need of exploration. Energy security becomes one of the most important issue in IR. It includes how to acquire and distribute maintaining its transport security, and the research about new energy. I try to revise the rational design of international institutions about the leadership, membership rules, scope of issue covered, centralization of tasks, rules for controlling the regime, flexibility of arrangement and international socialization approach to explore the possibility of energy security regime.

### Institutions? Regimes?

#### (1) Institution, rules, and Procedures

An institution is a complex of rules and procedures that governs a given set of actors interaction. Rules prescribe appropriate behaviors in specific settings. Procedures are rules that determine how actors make other rules and what actors abide by solving disputes. Institutions provide structure in which some scholars define as explicit arrangements, negotiate among international actors, that prescribe, proscribe, and/or authorize behavior.<sup>2</sup> Explicit arrangements are public, they are general forms of cooperation. By the way, institutions may create or prohibit behavior. The 1922 Treaty for the Limitation of Naval Armament is a example. Ruggie thinks multilateralism is an institutional form which coordinates relations among three or more states on the basis of "generalized" principles of conduct.<sup>3</sup> Mearsheimer defines institutions as a set of rules that stipulate the ways in which states should cooperate and compete with each other.

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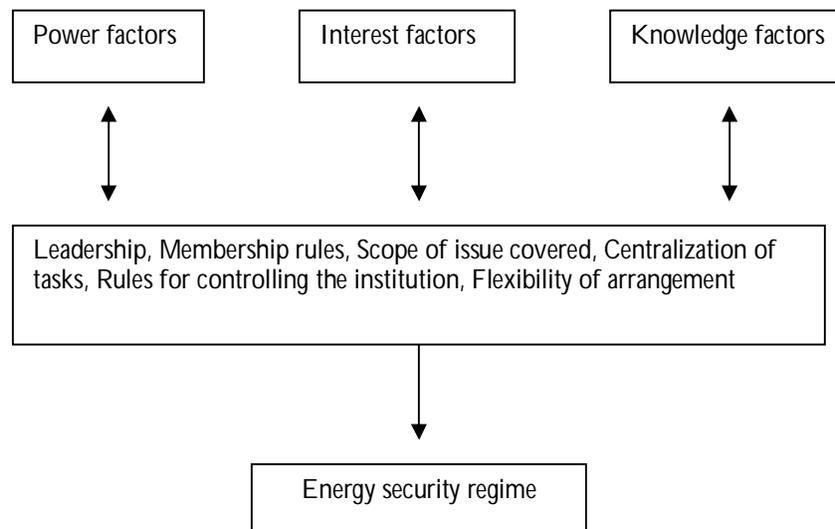
<sup>2</sup> Barbara Koremenos, Charles Lipson, and Duncan Snidal, " The Rational Design of International Institutions," *International Organization*, Vol.55, No.4(Autum 2001), p.762.

<sup>3</sup> John Gerard Ruggie, " Multilateralism : The Anatomy of an Institutions," *International Organization*, Vol.46, No.3(1992), pp.570-571.

These rules are negotiated and/or by states, and according to Mearsheimer's theory, which entail the mutual acceptance of higher norms, which are "standards of behavior defined in terms of rights and obligations".<sup>4</sup> March and Olsen view an institution as a relatively stable collection of practices and rules defining appropriate behavior for specific groups of actions in specific situations. By the process of the institutionalization, states improve the development of practices and rules in the context of using them and has earned a variety of labels, including structuration and routinization.<sup>5</sup>

## (2) Regime

Puchala and Hopkins stress five major features of regimes.<sup>6</sup> First, a regime is an attitudinal phenomenon which follows from adherence to principles, norms, and rules. Second, an international regime includes tenets concerning appropriate procedures for making decisions. Third, a description of a regime must include a characterization of the major principles it upholds as well as the norms that prescribe orthodox and proscribe deviant behavior. Fourth, each regime has a set of elites who are the practical actors within it. Finally, a regime exists in every substantive issue-area in international relations where there is discernibly patterned behavior. Krasner defines regimes as sets of implicit or explicit principles, norms, rules, and decision-making procedures around which actors' expectations converge in a given area of international relations.<sup>7</sup> Young defines regimes are social institutions governing the actions of those interested in specifiable activities.<sup>8</sup> Strange addresses five criticisms of the concept of regimes to challenge the validity and usefulness of the regime. It includes the regime is a passing fad, imprecision of terminology, value bias, too static view, and state-centeredness.<sup>9</sup> But the dynamic character of the "who-gets-what" of the international politics is more likely to be captured by looking not at the regime that emerges on the surface and the bargains at the basis. According to these contentions, I explore institutions and regimes as a way to understand international cooperation, defined as adjustment of state's policies. So in this article, institutions and regimes are the same concept, defined as the dynamic process among the states to sharp the principles, norms, rules, and decision-making procedures under the context of international cooperation. I depict the process of the formation of the energy security regime (Fig.1-1) to analyze the components and linkages of the subject.



**Fig.1-1: The Formation of Energy Security Regime**

<sup>4</sup> John J. Mearsheimer, "The False Promise of International Institutions," *International Security*, Vol.19, No.3(1995), p.8.

<sup>5</sup> James G. March and John P. Olsen, "The Institutional Dynamics of International Political Orders," *International Organization*, Vol.52, No4(1998), pp.948-949.

<sup>6</sup> Donald Puchala and Raymond Hopkins, "International Regimes: Lessons From Inductive Analysis," *International Organization*, Vol.36, No.2(1987), pp.246-248.

<sup>7</sup> Stephen D. Krasner, "Structural Causes and Regimes Consequence: Regimes as Intervening Variables," in Stephen D. Krasner, ed, *International Regimes*, (Cornell University Press, 1983), p.2.

<sup>8</sup> Oran R. Young, "International Regimes: Problems of Concept Formation," *World Politics*, Vol.32(1980), pp.331-356.

<sup>9</sup> Susan Strange, "Cave! hic dragones," *International Organization*, Vol.36, No2(1982), pp.338-350.

## Security under International Cooperation

Security is a complex and argued concept. Most IR scholars including realists, neo-realists and neo-liberal-institutionalists would agree that a security problem threatens human's life, even survival. So we analyze the issue of security in IR, it includes political, economic, military, environmental, technological, and cyber, it also shows the history and development of IR. Under the context of anarchy, security connects with international cooperation. Cooperation is opposed to competition or conflict, which implies each actor's goal-seeking that provides the actors with gains and rewards. In an anarchic world, states want to seek to maximize their gains, the optimal way to achieve the gains under the cheating and the inability to punish is using tit-for-tat strategy to induce cooperation among the states. Some IR scholars argue that cooperative behavior may be more likely when states pursue a strategy of reciprocity, because they know they will be punished for defecting and rewarded for cooperating.<sup>10</sup> Collective security is a good example. The basic principle of collective security is "all for one, one for all". It means states in the international system coming together to act under an agreed set of norms, principles and rules, to defend an existing security order from a threat or attack. Collective security rests on the claim that regulated, institutionalized balancing predicated on the notion of all against one provides more stability than unregulated, self-help balancing predicated on the notion of each for his own.<sup>11</sup> According to Bowett's contention, collective security includes five features: common consensus, promise, organization, members universal, and power diffusion.<sup>12</sup>

During the context of collective security, members realize their promise by collective cooperation to adjust their behavior to participate to against aggression. By the way, the subjective elements of international cooperation include the belief diffuse, trust establish, persuasion, reciprocity and norms. Goldstein and Keohane explore three types of beliefs.<sup>13</sup> First category of ideas, world views, are embedded in the symbolism of a culture and deeply affect modes of thought and discourse. Second category of ideas, principled beliefs, consists of normative ideas that specify criteria for distinguishing right from wrong and just from unjust. The ideas in a third category, casual beliefs, are beliefs about cause-effect relationships which derive authority from the shared consensus of recognized elites, and such causal beliefs provide guides for individuals on how to achieve their objectives. Hardin argues that trust is never unconditional, that it always implies a three-part relation, as in "A trusts B to do x" (or matters x).<sup>14</sup> It refers to A trust B (B has a motivation) will do x by beliefs, and B will do x because he trusts A to anticipate his behavior by beliefs. Under the context, it corresponds to Fukuyama's argument that trust is one element of social capital and he attempts to compare the relative economic performance of different nations and cultures on the basis of differing levels of trust.<sup>15</sup>

Hoffman conceptualize trust by five points.<sup>16</sup> First, scholars agree that trust refers to an attitude involving a willingness to place the fate of one's interests under the control of others. Second, scholars agree that trusting relationships are behavioral manifestations of trust. Third, the intensity and scope of trust and trusting relationships are capable of variation. Fourth, trusting others involves making predictions about their future actions. Finally, actors assess the risks of entrusting their interests to others using subjective estimates of the probability their trust will be honored.

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<sup>10</sup> Helen Milner, "International theories of cooperation among nations—strengths and weaknesses," *World Politics*, No44(1992), p.470.

<sup>11</sup> Charles A. Kupchan and Clifford A. Kupchan, "The Promise of Collective Security," *International Security*, Vol.20, No1(1995), p.52.

<sup>12</sup> D.W. Bowett, *The Law of International Institutions* (London: Stevens and Sons, 1982), pp.125-132.

<sup>13</sup> Judith Goldstein and Robert O. Keohane, "Ideas and Foreign Policy: An Analytical Framework," in Judith Goldstein and Robert O. Keohane, eds., *Ideas and Foreign Policy – Beliefs, Institutions, and Political Change* (Ithaca, N.Y.: Cornell University Press, 1993), p.8.

<sup>14</sup> Russell Hardin, "The Street Level Epistemology of Trust," *Politics and Society*, Vol.21, No.4 (1993), pp.505-529.

<sup>15</sup> Francis Fukuyama, *Trust: The Social Virtues and the Creation of Prosperity* (New York, N.Y.: The Free Press, 1995), pp.6-20.

<sup>16</sup> Arron M. Hoffman, "A Conceptualization of Trust in International Relations," *European Journal of International Relations*, Vol.8, No.3(2002), pp.375-401.

Finnemore and Sikkink argue that persuasion is central to most of the empirical case studies about normative influence and change.<sup>17</sup> It is the effective attempt to change the utility functions of other players. Checkel defines persuasion as a social interaction that involves changing attitudes about cause and effect in the absence of overt coercion.<sup>18</sup> Therefore, persuasion is a process of trusting someone through rewards and punishments. Reciprocity is a condition theoretically attached to every legal norm of international law.<sup>19</sup> It is also invoked as an appropriate standard of behavior which can produce cooperation among states.<sup>20</sup> Keohane distinguishes two distinct meanings. First, he uses specific reciprocity to refer to situations in which specific partners exchange items of equivalent value in a strictly delimited sequence. Second, he uses diffuse reciprocity to involve conforming to generally accepted standards of behavior,<sup>21</sup> and those reciprocal obligations hold societies together. Axelrod defines a norm exists in a given social setting to the extent that individuals usually act in a certain way and are often punished when seen not to be acting in this way.<sup>22</sup> Thomson contends that an international norm is only that as a rule states engage in such practices.<sup>23</sup> So a norm is about behavior and the sense of ought. According to the analysis of security, it succeeds in connecting with cooperation. Under the analysis of subjective of cooperation, we realize beliefs, trust, persuasion, reciprocity and norms are the key elements. Therefore, the more actors achieve cooperation by these elements, the more security will be guaranteed.

### Security Regime and International Socialization

Jervis considers that the great powers want to establish and maintain a security regime, because a more regulated environment can attain the actors to cooperate, and the actors must also to believe that others share the value they place on mutual security and cooperation.<sup>24</sup> The Concert of Europe as a security regime. Under the context of security regime, states internalize relative beliefs and norms by trusting, reciprocity and persuasion. It connects with international socialization. Schimmelfennig defines international socialization as the process that is directed toward a state's internalization of the constitutive beliefs and practices institutionalized in its international environment.<sup>25</sup> So internalization means the adoption of social beliefs and practices into actor's own repertoire of cognitions and behaviors. Waltz contends socialization is a function of a state's "involvement in the system", and states are forced "to conform to successful practices".<sup>26</sup> Finnemore and Sikkink define state socialization as an active mechanism whereby newly articulated norms "cascade" through the international system, propelled by a combination of material sanctions and symbolic "peer group" among states.<sup>27</sup> Alderson defines state socialization as the process by which states internalize norms originating elsewhere in the international system.<sup>28</sup> How states internalize? International interaction constitutes state identities and interest which become the goal of state achieving. According to these contentions, socialization is a key mechanism that connects institutions and regimes to states. Ikenberry and Kupchan think that hegemony uses three mechanisms to make socialization to work: normative persuasion, external inducement, and internal reconstruction.<sup>29</sup> Hegemony uses economic, military or material incentives to induce secondary (smaller) states to change their policies.

<sup>17</sup> Martha Finnemore and Kathryn Sikkink, "International Norm Dynamics and Political Change," *International Organization*, Vol.52, No.4(Autumn, 1998), p.914.

<sup>18</sup> Jeffrey T. Checkel, "Persuasion in International Institutions," ARENA working papers, WP 02/14, pp.2-3.

<sup>19</sup> Elizabeth Zoller, *Peacetime Unilateral Remedies* (Dobbs Ferry, N.Y.: Transnational, 1984), p.15.

<sup>20</sup> Robert O. Keohane, "Reciprocity in International Relations," *International Organization*, Vol.40, No.1(Winter, 1986), p.1.

<sup>21</sup> *Ibid*, p.4.

<sup>22</sup> Robert Axelrod, "An Evolutionary Approach to Norms," *American Political Science Review*, Vol.80, No.4(1986), p.1097.

<sup>23</sup> Janice Thomson, "Norms in International Relations: A Conceptual Analysis," *International Journal of Group Tensions*, No.23(1993), p.81.

<sup>24</sup> Robert Jervis, "Security regimes," *International Organization*, Vol.36, No.2(Summer, 1982), p.357.

<sup>25</sup> Internalization means the adoption of social beliefs and practices into the actor's own repertoire of cognitions and behaviors. Frank Schimmelfennig, "International Socialization in the New Europe: Rational Action in an Institutional Environment," *European Journal of International Relations*, Vol.6, No.1(2000), pp.111-112.

<sup>26</sup> Kenneth N. Waltz, *Theory of International Politics* (N.Y.: Random House Press, 1979), p.128.

<sup>27</sup> Martha Finnemore and Kathryn Sikkink, "Norms, culture, and world politics: insights from sociology's institutionalism," *International Organization*, Vol.50, No.2(Summer, 1996), pp.325-347.

<sup>28</sup> Kai Alderson, "Making sense of state socialization," *Review of International Studies*, Vol.27 (2001), p.417.

<sup>29</sup> John G. Ikenberry and Charles A. Kupchan, "Socialization and Hegemonic Power," *International Organization*, Vol.44, No.3(Autumn, 1990), p.284.

How do states socialize and construct regime? State learning will be the key element. Haas studies of learning by focusing on international organizations, which naturally blurs the distinction between learning by a single entity and learning by a collection of actions.<sup>30</sup> Haas discusses international organizations as collections of states, in which case any learning is implicitly shared across states. Levy defines experiential learning as a change of beliefs or the development of new beliefs, skills, or procedures as a result of the observation and interpretation of experience.<sup>31</sup> His argument implies the information of historical experience. Nevertheless, most scholars focus on issue of learning related to peace or cooperation. Nye considers learning only in relation to possible outcome of cooperation.<sup>32</sup> Stein thinks learning in relation to conflict reduction and resolution.<sup>33</sup> Tetlock distinguishes five different definitions about learning:<sup>34</sup> 1.the neorealist approach (learning involves the rational adjustment of policy in response to the reward and punishment contingencies of international environment); 2.the belief system approach (learning involves change in the cognitive content of one's image of the international environment and the best ways to cope with that environment); 3.the cognitive structural approach (learning involves change in the cognitive structure of one's image of the international environment: change in the direction of greater complexity and greater capacity for self-criticism); 4.the organizational and political cultural approach (learning involves change in the institutional procedures or cultural norms that shape how governments respond to international events); 5.the efficiency conception of learning (learning involves acquiring the ability to match means and ends more effectively than one could in the past).

According to these scholars' arguments, learning possesses instrumental meaning to make sense international socialization. Learning what, in this conceptualization, remains a claim that the actor wants to change his behavior to get rewards or to avoid punishment, and involves power effect, ideas transmission, interest evaluation. Learning how, in this conceptualization, involves a claim that the actor has improved his performance in relation to certain goals, and contains a limited area (organization), peer group's influence, knowledge spreading and cognitive change. Learning outcome, in this conceptualization, explores the interaction of power, interest, knowledge, cognitive and organization among actors. I use a simple way to describe learning approach: to learn → to know → to believe → to change. And in each process, embeds power, interest and knowledge factors and also forms "collective knowledge" and "common interest". I try to realize the effect of power, interest, and knowledge between regimes and cooperation by the process of learning which promotes international socialization. Power factors come from great powers, interest factors derive from trust, reciprocity and norms, knowledge factors spring from beliefs and persuasion. NATO is a good example. U.S. and other Europe great powers show the power context in dealing with security issues. Through members' interaction, the concept and practice of collective defense become the core value by cooperation. Under the NATO, it provides members the main interest of security and survival by norms. It also provides an area that members transit and receive information, beliefs, and knowledge. During the process, it shows the effect of persuasion. NATO uses the explicit principles, norms, rules, and decision-making procedures to form security regime, members receive and exchange beliefs and information, furthermore build up relations of trust and reciprocity, finally set up norms. The process of cooperation successfully connects with international socialization, and also expresses in other security regime or international organization just like UN. Under the context of regime, weak regimes correspond to Ruggie's argument — multilateralism, and strong regimes correspond to international organization. The regime becomes a cause of states' behavior. Therefore, power factors, interest factors, and knowledge factors affect security regime, and also affect energy security regime's variables.

<sup>30</sup> Ernst B. Haas, *When Knowledge is Power : Three Models of Change in International Organizations* , (CA: University of California Press, 1990), pp.4, 128.

<sup>31</sup> Jack S. Levy, " Learning and foreign policy", *International Organization* , Vol.48, No2(1994) , pp.283-284.

<sup>32</sup> Joseph S. Nye, Jr., " Nuclear Learning and US-Soviet Security Regime ", *International Organization* , Vol.41, No2(1987) , pp371-402.

<sup>33</sup> Janice Gross Stein, " Image, Identity, and Conflict Resolution", in Chester A. Crocker and Fen Osler Hampson (eds.), *Managing Global Chaos : Sources of and Responses to International Conflict*, (Washington, DC: United States Institute of Peace Press, 1996), pp.93-111.

<sup>34</sup> Philip E. Tetlock, "Learning in U.S. and Soviet Foreign Policy : In Search of an Elusive Concept ", in George W. Breslauer and Philip E. Tetlock (eds.), *Learning in U.S. and Soviet Foreign Policy*, (Colorado : Westview Press , 1991), p22.

### **Analyze Variables of Energy Security Regime**

Energy security is becoming an issue of increasing importance to international society, it includes to use and protect oil or gas as political leverage. In December 2005-January 2006, when Russia dramatically raised the price of natural gas that it was supplying to Ukraine, many saw an effort to squeeze Ukraine politically and economically to secure Kiev within Russia's orbit. Moscow's effort also underscored the shift towards the ability of energy producers to exert pressure on countries dependent upon them for supplies.<sup>35</sup> The United States and its European allies have begun to discuss the appropriate institutions and policies for ensuring energy security. The Bush Administration introduced a discussion of energy security at NATO in February 2006, with the support of key allies such as Britain and Germany.<sup>36</sup> It shows to build an effective energy security regime that is immediately way. The renewed focus on energy security is driven in part by an exceedingly tight oil market and by high oil prices. It also becomes the number one topic on the agenda of G8. But it is also fueled by the threat of terrorism, instability in some exporting nations, a nationalist backlash, fears of a scramble for supplies, geopolitical rivalries, and countries' fundamental need for energy to power their economic growth.<sup>37</sup> How to build up a energy security regime which can deal with a global energy issue? It concerns to mine and protect. I attempt to explore a energy security regime by revising rational design of international institutions by Koremenos, Lipson and Snidal.

### **Leadership**

Leadership, Young refers to the actions of individuals who endeavor to solve or circumvent the collective action problems that plague the efforts of parties seeking to reap joint gains in processes of institutional bargaining.<sup>38</sup> Leader country in an issue area is an individual who devises effective ways to solve problem, or relies on the transition of the beliefs to show the effect of power in which institutional members understand relative issues. Therefore, leadership facilitates to reach agreements in the process of bargaining and also adjust conflict among members. Take UN for example, permanent member play the role of leadership in dealing conflict and guiding collective actions.

### **Membership Rules**

Who should belong to a regime? It refers to the numbers of actors and their types --- states or NGO, endogens by design choice made about establishing, changing and operating regime, also effects regime development. The energy security regime's members should include powerful actors and producers, especially hegemony and important IO such like NATO, EU, G8, and OPEC. Membership shows power and interest factors of regime-building. By the way, members determine the future of regime, especially the development of the energy security.

### **Scope of Issue Covered**

What energy security issues are covered? In energy-mining issue areas, for example, we have to discuss relative technology, infrastructures, states participation, investment, the effect of cooperation. In energy-transporting issue areas, we have to explore the security during the process of the energy transporting, the maintenance of pipelines. In energy-exchanging issue areas, for example, we have to argue the consideration and coordination of supply and demand, especially price. These issues need institutions or norms to achieve.

### **Centralization of Tasks**

Koremenos, Lipson, and Snidal use the term more broadly to cover a wide range of centralized activities. In particular they focus on centralization to disseminate information, to reduce bargaining and transaction costs, and to enhance enforcement.<sup>39</sup> The tasks of centralization inside the regimes are information collection and interchange. Bargaining procedures and norms enforcement can be the development of the regimes.

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<sup>35</sup> Paul Gallis, "NATO and Energy Security," CRS Report for Congress, RS22409 (March, 2006), p.1.

<sup>36</sup> Ibid.

<sup>37</sup> Daniel Yergin, "Ensuring Energy Security," *Foreign Affairs*, (Mar/Apr, 2006), Vol. 85, Issue 2, pp.69-82.

<sup>38</sup> Oran R. Young, "Political leadership and regime formation: on the development of institutions in international society," *International Organization*, Vol.45, No.3(Autumn, 1991), p.285.

<sup>39</sup> Barbara Koremenos, Charles Lipson, and Duncan Snidal, *op. cit.*, 2001, p.773.

### Rules for Controlling the Regime

How will collective decisions be made? It connects with the decision-making rules and members, especially about the problem of equal votes and vote. If a minority can veto, its votes carry special weight,<sup>40</sup> and power factors will be the more important indexes. Under the context of rule, voting mechanism is the key element, unanimity or majority will affect the outcome of issue and policy-making.

### Flexibility of Arrangements

Under the changeable international circumstances, a regime should have a set of accommodation mechanism to adapt unanticipated circumstances. It includes power, interest, and knowledge factors, also includes state learning among members. Under the context, the members of energy security regime have to adjust relative policy to face the change of international environment and maintain their benefits at the same time. Briefly, I analyze rational design of international institutions by Koremenos, Lipson and Snidal, and try to strengthen the analytical index. I attempt to explore the subjective of regime--- cooperation--- and find out its essential factors which include beliefs, trust, persuasion and reciprocity. These factors embed in learning which the key element of international socialization. Under the context, leadership is the index which undiscussed on the article of rational design of international institutions. I try to analyze to the possible issue of the energy security regime construction to manifest how the power, interest and knowledge factors influence the indexes of energy security regime.

### Case Study

The current energy security system was created in response to the 1973 Arab oil embargo to ensure coordination among the industrialized countries in the event of a disruption in supply, encourage collaboration on energy policies, avoid bruising scrambles for supplies, and deter any future use of an "oil weapon" by exporters.<sup>41</sup> Experience has shown that to maintain energy security countries must abide by several principles :<sup>42</sup> the first and most familiar is what Churchill urged more than 90 years ago: diversification of supply. A second principle is resilience, a "security margin" in the energy supply system that provides a buffer against shocks and facilitates recovery after disruptions. The third principle: recognizing the reality of integration. A fourth principle is the importance of information. In practice, the members of the energy security regime have to coordinate the supply and demand of relative energy, integrate the decision-making mechanism and exchange the information. In theory, regime design can resolve the dilemma about the development of energy security, especially the problem if free rider. Take oil for example, market forces influences the price fluctuating and generate more investment, which boosts both production and capacity. High oil price is a painful but necessary cure for the disease that has affected the oil market. How to maintain the stability of the oil price? It is one of the functions of energy regime. I try to use the approach of design of international institutions to explore these subjects about oil : market, exploit oil reserve, the technology of refine crude oil, search for substitute energy, and balance development.

#### 1. Market

Oil is not only a production but also a energy and it can create benefits. Oil market is an alluring area among the energy exporting countries, especially OPEC countries and their national oil companies. For them, oil is not only a production, but also a strategic resource. They will influence the change of international environment by price. In energy security regime, leader would use its power to distribute interests to adjust the price and persuade other members. Members can show the influence of peer group to make rule-saboteur to obey collective rules, especially price. A market issue may be linked to a security issue to international affairs, it also a institutional issue about regime development and centralization of task even though the controlling of regime policy-making. From regime constructing, market issue would be an important goal to adjust members' intension and ability. By the way, it involves regime flexibility no matter adaptive (for the short term) or transformative (for the long term development).

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<sup>40</sup> Ibid, p.12.

<sup>41</sup> Daniel Yergin, *op. cit.*, 2006, pp.69-82.

<sup>42</sup> Ibid.

Moreover, energy security regime establishes the issue and core goal, all members have to implement. Energy market stabilization always the goals of energy security. By constructing regime, oil market will be stable and members will make a profit, international society will be better.

## 2. Exploiting Oil Reserve and the Technology of Refine Crude Oil

However exploiting oil reserve or refining crude oil, technology is the key element. According to Maugeri's analysis,<sup>43</sup> by improving reservoir management and the introduction of new technology that recovers oil more effectively have already brought the water cut down to about 30 percent. But it costs to develop new technology to improve refinement. If the cost pays by oil companies (Exxon, Shell, By, Mobil, Chevron, Gulf, and Texaco), it also makes oil price to rise unreasonably. Energy security regime can solve the problem by cooperation among members, because it belongs to "common interest". Exploiting oil reserve and developing new technology of refine crude oil can be the issue or task of members. Another question is about how to adjust among members? Leadership is an important element. Leader country has to create common sense and common interest to persuade members, and also can maintain oil supply, especially the scale of the global trade in energy will grow substantially. Furthermore; how to distributes the cost of exploiting oil reserve and new technology? It belongs to the issue of scope, task and flexibility inside the energy security regime. It also shows that under the context of power and interest, members adopt appropriate strategy to resolve the problem.

## 3. Searching for Substitute Energy

Why to search for substitute energy? A careful analysis of field-by-field future production assessments suggests that by 2010 the production of light crude will have grown to 25 million barrels per day from 17 million barrels per day today, helping to ease the global refining imbalance. All of these developments suggest that well before 2010, the imbalance between refining capacity and market demand could be overcome.<sup>44</sup> How to search for substitute energy? It is an issue that everyone in the world should to face. The responsibility does not only belong to energy security regime members, it also belongs to non-members. Under the context, energy security regime can transit ideas and persuade others to achieve the goal. During the process, regime would not be treated a businessman, it would be treat a pioneer.

## 4. Balancing Development

In a interdependence world, energy security will depend on how countries manage their relations with one another, especially within multilateral frameworks. Under the context of energy security regime, energy security will be one of challenge of members' foreign policy. Investment technology, energy supply stabilization, substitute energy development, and the influence to the world would become the energy security issue, and this will have a effect not only on the future energy area but also on the environment. No matter what issue about market, technology of refine crude oil and substitute energy, which embed power factors (leadership, membership rules, flexibility of arrangements), interest factors (issue, task) and knowledge factors (ideas transition). The interaction entangles the process of learning between members and non-members, and forms international socialization.

## Conclusion

Energy security is the most important issue in every state's priority. It is also one of the major challenges in the international circumstance. For the time being, a effective energy security regime should promote the stabilization and protection of the energy development. It includes many factors, such as power (leadership, members, rules), interest (common interest, scope of issue, tasks), knowledge (beliefs, ideas), international socialization (learning, persuasion, trust). I attempt to connect with these variables to realize how to build a rational decision of energy security regime. Therefore, a functional energy security regime corresponds to rational institution design, but one element ignored by Koremenos, Lipson and Snidal --- leadership. To make a comprehensive view, workable international organizations, institutions, regimes and multilateralism which possess one or more leader country to predominate issue and task. Especially energy security issue, it intertwines elements about market, core value, institutional design, members' relationship and leadership which embeds power, interest and knowledge factors.

<sup>43</sup> Saudi Arabia--the largest oil producer in the world--still has a huge potential for increases in oil production, especially the Ghawar field, the world's largest oil field and the source of more than half of Saudi crude. Ghawar's drying up is supposedly demonstrated by a high "water cut", the percentage of water brought to the surface with the oil during drilling. A field's water cut does tend to increase as the field ages, and in Ghawar it had reached 37 percent by 2000, compared to 25 percent across the entire industry. (In other words, for every 100 barrels of oil produced in Ghawar, 37 barrels of water were also pumped out). Leonardo Maugeri, "Two Cheers for Expensive Oil," *Foreign Affairs*, (Mar/Apr, 2006), Vol.85, Issue 2, pp.149-161.

<sup>44</sup> *Ibid.*

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