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Energy Security Strategy in the European Union: A neo-realism approach

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Abstract： The paper aims to demonstrate a roadmap for the emerging EU energy security strategy by applying the neo-realism approach. To present the arguments, an analytical framework and a set of hypotheses will be examined on: how does the energy security become a national interest and being embedded into national security strategies? How is the collective action over the energy security cooperation necessary at the EU level? Facing the increasing scarcity of energy recourse and Russian political ambitions in Europe and Central Asia, how does a collective security between the EU, the U.S and non-EU Eastern European countries likely? The paper is composed by four sections. Introduction on the research background is set in the section one, followed by the literature review in section two. An analytical framework with a set of hypotheses is framed in section three and followed by the conclusion.

1. Introduction

Energy security has traditionally a national matter in the European Union. However, the growing demanding on gas and decreasing producing capacity makes Russia becoming a predominant supplier of the European energy market. The state-owned energy enterprises, such as Gazprom, have been massively operating their business around Europe and Central Asia. Against these backgrounds, the EU energy

security was brought into the European level since the EU-Russia energy dialogue commenced in 2000. The EU institutions, in particular, the Commission, have been expressing its willingness to urge the member states ‘speak in one voice’ on the energy security. Since then, a range of energy initiatives aiming on diversifying energy supplying resources and transiting routes were carried out at the EU level. For instance, the launch of Black Sea and Caspian Sea cooperation intuitive in 2004; the Energy Community South East European Treat in 2005, focusing on incorporating eastern central Asian oil-rich countries and Balkan states into the European regional market for gas and petroleum products. A Memorandum of Understanding on energy cooperation was signed with Ukraine in 2005, reflecting Kiev's aspiration to join the Energy Community South East European Treaty. Similar bilateral energy partnerships were signed in 2006 with Azerbaijan and Kazakhstan.

To facilitate the implementation of external actions, a movement toward defining a common European energy policy was set out in the European Commissions Green Paper (European Commission 2006). Underneath the initiatives and political documents, the question is arisen: whether it is necessary to have an integrated energy security strategy at the European level? How to solve the collective action problem alongside the cooperative behaviors? International institution would be effectively enough to enforce the cooperation? Ultimately, what if these problems remain unsolved? Is there any solutions? In order to deal with the puzzles, I apply neo-realism as an approach to examine the route of the EU energy security strategy in the past and in future.

2. Literature review on neo-realism approach

The neo-realism fits to explain the EU energy security strategy is based on its assumption of actors' rationality, which in converging with rationalism on the ground of institutional cooperation, on one hand; from the realism perspective, 'cooperation is difficult to achieve', on the other hand.

2.1 From rationality side

Since sharing the assumption of rational actors[1] and accept the function of regimes, neo-realists and neo-liberalists have a common ground in studying international institutions (Katzenstein *et al* 1998; Keohane 1988). The definition of international institutions given by different schools of thought may demonstrate the understanding towards institutions.

- Neo-realists think "institutional regimes are sets of implicitly or explicitly principles, norms, rules and decision-making procedures around which actors' expectations converge in a given area of internationals relations" (Krasner, 1983).
- Institutions are "recognized patterns of practice around which expectations converge" (Keohane,1984)

Neo-realists have explained the creation and persistence of regimes on the basis of hegemonic stability theory (Gilpin1981; Kinderberger 1981; Snidal 1985). Secondly, regimes are useful for providing stability since

[1] Actors have GIVEN preferences to pursue their goals, and the pursuit is guided by beliefs about each other preference and relative costs and benefits of different outcomes. And actors are constrained by their capabilities.

there is a possible optimal outcome. Regimes are important in mediating between interests and outcomes and provide a compelling explanation in certain circumstances (Krasner 1983). Finally, Regimes may prove useful instruments in facilitating cooperation by mitigating cheating and allowing for the resolution of distributional issues (Grieco 1993a).

Rationalists regard, in accordance with rational choice, in cooperation with non-cooperative game until there is a state of stability of Nash equilibrium, those actors and repeated acts of copying and practices will be translated into practice step by step with rules, the institutions also came into being. Institutions can reduce the uncertainty of the environment (defection), improve the quality of information (information asymmetry), reduce transaction costs, increase an expected convergence behavior (convergence of expectation), and ultimately provide reciprocity among actors (Keohane 1984; 1988).

But how does the institutions deal with the collective action problems occurred by the uncertainty, defection or asymmetric information among actors (Olsen 1965)? Reflecting on the international institutions, the collective action problems include (1) enforcement, which mainly refers to the problem of incentives of defection; (2) distribution; (3) the number of actors and balance of power issues; (4) uncertain to other actors' behaviors, intentions and the consequences (Koremenos, Lipson and Snidal 2001). Those problems can also interact to each other, for example, how enforcement problem across different issues affects institutional design, such as defection, cheating, interacted with distributional problem.

Lisa Martin (1992) classified cooperative problems into four categories and followed by its strategies correspondingly. Her study was

summarized as the Table 1.

Table 1: Rational solution to cooperative problems and its strategies

Problem	Reason	strategy
Collaboration	crises come from reductions in the "shadow of the future" and reductions in states' information on others behavior	Prisoners' Dilemma
Coordination	if one states to change the equilibrium (domestic or technological), cooperation will undergo a crisis	Battle of Sexes
Suasion	As hegemony declines, they will be less likely to bribe others into cooperating.	Persuasion or coercion under hegemony
Assurance	worry about other's preference as domestic or technological changes	Stag Hunt

(*Source*: Lisa Martin1992)

By applying game theoretical analysis, she demonstrated "Prisoners Dilemma "to explain how the cooperation by sharing information and punishing defection is achieved over collaborative problems. In the case of coordination problem, a strategy of the "battle of sexes" is to solve the distributional problem rather than the cause of asymmetrical information or defection. To deal with the suasion problem, the feasible way is that the hegemony to persuade or coerced those weaker or who has the potentials to break the equilibrium. The strategy of "stag hunt" is suggested to cure the assurance problem.

To sum up, the rationality of actors desires cooperation with others since the interdependency generates convergent expectation to achieve reciprocity by reducing transaction costs and to diminish the uncertainty

of defection. Cooperation under a certain framework of international institutions can overcome the collective action problem by adopting different strategies, at least in theory, however, the balance might be threaten by the nature of scarcity resource, for instance the energy, or a growing actor' capacity, who desires for pursuing a better position, in other word, a relative gains in the structured world. To secure the balance, the neo-realism school offers its insight to work out a possible solution.

2.2 from neo-realism side

Realism scholars argue that the world is an anarchic, competitive system, whereas nation-states are self-interested and pursuing economic and military power in order to ensure survival (Morgenthau 1978; Waltz 1979). States will be reluctant to enter into any agreement that leaves them in a worse position relative to others (Waltz 1979). Cooperation is very difficult to achieve and sustain amongst states because of distrust and competition to make relative gains (Grieco 1988), even though the regime theory may help to understand the establishment and existence of international institution. In this sense, states may go back to the starting point: how to ensure security of being a survival against perceived threats? Collective security might be a solution. Charlie Kupchan and Clifford Kupchan (1991) argue that 'balancing under the collective security is an effective mechanism that offers robust deterrence with an opposing coalition on aggressor'. Additionally, a collective security contributes the institutional stability through cooperation rather than through competition, which eventually mitigates the rivalry and hostility of self-help world. Kupchan and Kupchan believe that concert-based collective security, which is designed with small memberships to facilitate timely joint decision making and ameliorate the collective

action problem.

To sum up the theories in relating to the research questions, in the next section, I focus on answering:how do the neo-realism theories applied to the current EU energy security? Does the institutional cooperation exist? Do they effectively to be enforced? Does the collective security exist regarding energy security? If so, would it be feasible to form a concert-based one?

3. Analytical framework and hypotheses

This section is set out into four hypotheses in order to draw a picture of neo-realism approach to analyze the EU energy security strategy. The logic behind is: as the energy security becomes a national interest, rational state actors intend cooperation each other in seeking mutual reciprocity for the sake of interdependent economy. However, the increasing intolerance of certain great powers with expansive economic and political growth in the global system, the perception of scarcity energy resource, and distrust among actors may call a collective security as a solution.

3.1 Energy security as a national interest

Hypothesis1: as the increasing dependency on energy, securing the supply of energy becomes a matter of national interest.

Energy security usually is defined as “reliable supplies at [a] reasonable price”. Nevertheless, if one takes a closer look at what secure supply constitutes, the complexity of this task becomes obvious. Thus the often-cited triangle – supply security, sustainability and competitiveness

– marks the relation between the three main aspects of energy policy, but it is insufficient as a framework for energy security. And moreover, a solely economic understanding of securing the energy supply by means of trade and business is not enough. Growing dependence on foreign supply – as most European countries experience it today – results in uncertainty, if not insecurity.

To put it simple, energy security – is all about security. Any longer interruption of a steady and plenty flow of energy would hit a nation's economic output, political stability and the personal well being. A satisfactory supply with energy is a precondition for economic growth and also for the legitimacy within a political entity. Arnold Wolfers (1952) defined (objective) security as the "absence of threats to acquired values". Thus, security is more than just defense policy and physical survival; it also implies "a substantial range of concerns about the conditions of existence."

Countries around the world have recognized energy security as its core national interest since the beginning of twentieth century. As Churchill decided to use oil replacing coal empowering Royal Navy' shipments, he did not realize it was the starting point for a nation to enlist energy as its national interest for the military purpose. Countries involved in the WWI and WWII have experienced the importance of energy as means of empowering arm force in the battlefields.

Apart from military interest for seeking energy, the rapid economic development has increased the dependency on energy amongst industrial countries in the post-WWII period. Japan, France and West Germany became an energy-hunger due to its accelerating economic growth. No surprise, these countries heavily rely on the foreign suppliers. For

instance, In 1973, Japan' 70% of its energy use were filled by the Middle East, as well France in 70%, and West Germany in 40%.

The most obvious challenge for the West was preserving secure access to foreign source of oil after Arab OPEC oil embargo in 1970s. Japan and West Germany followed trade strategies promoting exports and adapting their industrial structures through public policy. While the U.S proposed policies that spanned its strategy in terms of market processes (Ikenberry 1986). French government after 1973 drew upon well-developed state institutions and state-owned enterprises in oil and nuclear energy as strategic options.

Alongside the global economic development, energy as a scarcity commodity has become more important than just meeting economic development but social stability. With the perception of next oil crisis and interruptions or sudden price increases can disturb economic activity, lead to income losses and cause strong inconvenience in daily life, especially if heating systems are affected in winter time, governments in industrial countries and emerging economies thus have an interest in preserving energy supply security and in preventing exporters from interrupting energy flows or increasing prices.

Tuning to the twenty-first century, the phenomenon of dependent foreign energy supplying has NOT been changed since the 70s. Almost thirty-five years on, the majority of member states in the EU are also net energy-importers. Some countries can be fatally affected by external shock in relating to interruption of energy supply, such as Spain, Italy, Portugal and Ireland. In average, over 50% of energy consummated by the EU member states relies on the external suppliers, which are included the Caucasian countries, Ukraine and Russia in the East Europe,

and the North Arab as well as the nations in the Middle East. In 2008, EU's 31% of EU oil imports and 26.8% of gas imports came from the Middle East. Spain and Italy were the purchasers of significant gas imports by pipeline from the region. Belgium and France also heavily depends on the Middle East supply (OPEC 2008).

Russia is another one of main resources contributing energy to the EU market. The EU imports almost half of its natural gas and 30% of its oil from Russia (European Commission 2007). The proven energy reserves and producing capacity makes Russia more attractive to the EU member states. Data (see Table 2) shows that some counties, such as Estonia and Finland, totally rely on Russian gas supply.

Table 2. Imported Gas and Gas from Russia (2008)

Country	Dependence on Imported Gas, 2008	Total Gas Consumed, Imported from Russia
Austria	88%	74%
Czech Republic	98%	70%
Estonia	100%	100%
France	98%	26%
Finland	100%	100%
Germany	81%	39%
Italy	85%	30%
Poland	70%	50%

Source: collection from International Energy Agency 2008; Eurostat 2009; British Petroleum, 2008.

The future of shadow on the increasing consumption and declining production turn the energy security into core national interest, both from importing and exporting ones. In Europe, according to the Commission

(European Commission 2007), the EU is expected to consume 15% more energy in 2030 than it consumed in 2000, on one hand; European production in 2030 will be 25% below 2000 levels, on the other hand. Dependence on imported oil will remain extremely high, reaching 94% in 2030. Dependence on imported gas will rise from about 50% today to 84% in 2030, and imports of solid fuels are projected to reach 59% in 2030 (European Commission 2007).

It is not just the energy importing countries regard energy security as national interest, but also the producing one, who may utilize energy as an instrument to implement foreign policy for serving its national interest. Russia government utilizes its state-owned energy enterprises to gain market access and exercise its energy power for political ends, which are all raising concerns in Europe over how to address external influences that could affect future energy requirements (Solana 2006； Van Gennip 2006).

3.2 Cooperation based on common interest and mutual concerns

Hypothesis 2: Common interests and mutual concerns will increase the interdependency among nation, and inevitably result energy security cooperation among nations.

Robert Keohane and Joseph Nye (1977) describe the relationship amongst nations are interdependent on the ground of being fragile and sensitive to each other. In other words, fragility means one nation react to an international incidence sensitively. For instance, the EU can not afford any instability occurred in Turkey since its importance for sitting on the route of transiting Europe' energy supply. Turkey' geopolitical location lies in its ability to major transit systems for gas as well as oil and hydrocarbon resources to access European markets by pipeline from

such diverse regions as the Caspian, Central Asia, the Persian Gulf, and the Eastern Mediterranean. [2]

The 70s oil crisis strength the mutual concerns and common interest among the West, mostly the Western Europe, Japan and the U.S. The challenge of preserving secure access to foreign source of petroleum after Arab OPEC oil embargo in 1970s became tangible. The industrial importing nations, European, Japan and United States, faced ostensibly common international dilemmas. Despite disruptions to national economy and underscored a common interest in reducing demand pressure on the international oil market, similar energy security goals were pursued by these governments: diversification of oil sources away from the Middle East, diversification way from oil to other types of energy (Yergin 1982). The International Energy Agency (IEA), an institution created in 1974 to coordinate contingency petroleum-sharing agreements. Control over the sources and the reliability of energy was a common interest shares by advanced industrial energy importing nations throughout the 1970s.

The interdependency of economy needs energy security cooperation to ensure a reliable market. Most of the energy that drives the global economy comes from fossil fuels, especially petroleum. For example,

[2] 'Turkey is geographically located in close proximity to 71.8% of the world's proven gas and 72.7% of oil reserves, in particular those in the Middle East and the Caspian basin. It thus, forms a natural energy bridge between the source countries and consumer markets and stands as a key country in ensuring energy security through diversification of supply sources and routes, considerations that have gained increased significance today' , *quoted from* Commission European Communities, the Deputy Directorate General for Energy, Water and Environment of Turkey, *Turkey's Energy Strategy* (Ankara, Turkiye: Enerji ve Tabii Kaynaklar Bakanligi Yayinlari,2008), http://www.mfa.gov.tr (accessed March 11, 2008)

the United States is the world's third largest oil producer, but it relies on international sources to supply more than 50% of needs. The energy purchases bring massive investment to the producing countries. In 2008, the EU institutions have financed about €1 billion to the eastern European countries, mainly in Ukraine and Georgia, in relating to the energy infrastructures and technical assistance (European Commission 2008). The IEA (2008) has estimated that worldwide investment in the energy sector will come to US$22 trillion by 2030. The EU becomes the largest trade partner to Russia, which is by accounting for 54.8% of all Russian trade. Russia is the EU's third largest trading partner, accounting for 8.3% of total EU trade (European Commission, DGT 2008).

Given the high dependence of many oil-producing countries on its oil revenues, a dramatic decline in energy consumption will become a result of an economic recession, which is accompanied by a higher decline of international oil prices, and ultimately it triggers domestic or even regional instability in major energy-exporting countries (Myers, Jaffe and Manning 2000). In 1998, during the Asian financial crisis with its worldwide impacts, several oil- exporting countries faced a decline of 50% in their national incomes within a year, which caused severe political and economic repercussions. At the end, governments changed in Algeria, Brunei, Indonesia, Nigeria and Venezuela as those losses exacerbated other national problems.

Concerns are also derived from the fear of high energy prices. The big losers will be in particular the poor countries since they will be hit economically, socially and politically much harder in comparison with the OECD countries. It may curtail their economic development prospects and lead to social–political unrest, state failure, new terrorist havens or large-scale migration (Burrows and Treverton, 2007). The

perceptions of threat, such as illegal immigration and organized crime, will in turn undermine the fundamental social welfare and political stability in the developed countries (Collyer 2007; Joffe 2008; Wiener 1990).

Without holding 'hard' power, as the U.S does, who imports energy from over 60 countries around the world, the energy price in the EU ranks the highest than the other countries. According to International Energy Agency 2008 report, retail gasoline prices in August for consumers in Europe ranged from a low of US$1.51/litre in Spain to a high of US$1.90/litre in Germany, while in U.S averaged at US$0.69/litre, compared US$1.32/litre in Japan (IEA 2008).

No matter where the energy comes from and where it goes to, security concerns over the supply, price and market reliability have tightly inter-linked the importing, exporting and transiting countries. The economic interdependency requires all participants' cooperation to work out a better solution for all. The problem follows: how to achieve the collective action? How to tackle free-riders?

3.3 Collective action towards international institutions

Hypothesis 3: international institutions can only enforce cooperation in the certain scope. The collective action problems among the energy importing -exporting-transiting counties remain unsolved due to the distrust and the behaviors on making relative gains in the global politics.

Europe's interest in energy security has been influenced by both internal needs and external factors. Internally, steadily rising energy demanding, declining European energy production and a fragmented internal energy

market have contributed to anxieties over Europe's ability to meet future energy demand (in section 3.1). Externally, apart from the constrains on persistent instability in energy producing regions, unreliable transiting route system, an asymmetric energy market (in section 3.2), and Russia's apparent willingness to use its energy power for political ends, are raising concerns in Europe over how to address external influences that might affect future energy requirements.

Gas conflict between Russia and Ukraine in 2006, the future security of European energy supplies has become the focus of a broader debate trigged by the Russian cutbacks in gas deliveries affected Ukraine and EU member states, the episode has questioned long-standing assumptions underlying European energy security strategy. The uncertainties are also derived from Russian government' behaviors reflected on a few incidence, for example, the transiting conflicts with Baltic countries during 2006-2007, the escalating conflict with Belarus about oil deliveries and transit in 2007. Those countries are major concerns of the EU' energy security either as members or the one sitting in the transiting routes of energy supply. There is growing distrust in the European Union about Russia's unwillingness to open up its huge reserves for foreign direct investments and the way in which the Russian government resolved its problems with their companies.

But as long as global energy services are not included into the umbrella of the World Trade Organization, alternative forms to formulate common rules have to be elaborated. On a regional base, the EU-initiatives on single markets for electricity and natural gas are an outstanding example. In contradiction to the common market regulations there are still some national obstacles that obstruct intra - European energy trade (European Commission: MEMO 2007/279). Anyhow, the free flow of energy resources and services is an adequate means to avoid

short-term supply interruptions and to encourage quality of services as well as technological innovations within the EU. Again the EU is too small and holds not enough domestic resources to be a sufficient energy market on its own. Thus liberalization of those markets should be promoted on a larger scale and have to be codified under the formal rules of international law.

On a wider geographical scope as the EU internal market, the 1994 *Energy Charta Treaty* (ECT) and its follow-up agreements tried to enact a global legal framework for transnational energy services. The ECT includes: most-favored treatment for foreign investments, non-discriminatory trade in materials, products and equipments, regulations for dispute settlements, and the promotion of energy efficiency.[3] From a European perspective, the main shortcoming of the ECT lies in the puny participation: The Russian Federation signed the treaty, but never ratified it. A functional enhancement would contribute to energy security, particularly in form of transparency and liability by enhancing the scale of this institutionalized energy market order.

To cope with the international uncertainties over energy supply, the EU member states have collectively endorsed the Commission's calls to develop a collective international energy policy, at least, the Commission has been trying to 'speak in one voice' on the energy security followed by an EU-Russia energy dialogue commenced in 2000. A range of energy initiatives was gradually established on a low-profile and ad hoc basis within the EU's different international partnerships. The launch of Black Sea and Caspian Sea cooperation intuitive in 2004, the Energy Community South East European Treat in 2005, aims in incorporating eastern central Asian oil-rich countries and Balkan states

[3] See: http://www.encharter.org/index.php?id=7

into the European regional market for gas and petroleum products. A Memorandum of Understanding on energy cooperation was signed with Ukraine in 2005, reflecting Kiev's aspiration to join the Energy Community South East European Treaty. Similar bilateral energy partnerships were signed in 2006 with Azerbaijan and Kazakhstan. A bilateral political dialogue between the EU and the Organization of Petroleum Exporting Countries (OPEC) was formally established and developed since 2005.

The European institutions also try to consolidate the energy policy at the EU level. As Jose Manuel Barroso (2006) declared that energy has been 'until recently a forgotten subject in the European agenda. Now it is back at the heart of European integration, where it began with the creation of the Coal and Steel Community, and where it belongs. A Movement toward the definition of a common European energy strategy was set out in the European Commissions Green Paper (European Commission: COM 2006/105) aiming on to have member states acting together, and then to have the EU as the weight to protect and asset its interests.

Nonetheless, while acknowledging that the EU may at times be in a better position to determine what leverage could be used to advance the collective interests of the Union as a whole, member states have been careful not to sacrifice their individual rights to independently pursue external relations to secure energy supplies. Europe’s energy relations with Russia best illustrate the tension between calls for a collective external energy policy and support for individual member state policies. Some of the EU’s newer member states, such as Poland, appear skeptical of Russia’s reliability as an energy partner, and therefore call on EU member states work collectively to prevent Russia from exploiting long-term dependencies for political purposes. At the same time, other member states, such as Germany, Italy, Austria etc., continue

to pursue long-term bilateral supply contracts with Russia's state-owned energy companies, increasing both their energy dependence on Russia. The diverging interests among industrial enterprises and EU member state governments make implementation of the mechanism to enforce collective action very unlikely.

In brief, the ineffective international institutions, such as ECT in global perspective and European Green Paper in the regional level, leave the collective action over energy cooperation problematic. The problems are rooted from the distrust and desires for pursuing a relative gains amongst actors, which are exactly reflected neo-realism doctrine: under anarchy, cooperation is difficult to achieve even in the presence of 'robust' international institutions' (Grieco 1988). Moreover, the perception of scarcity recourse and increasing intolerance of the existing superpower, such as the U.S, are in line calling for a collective security to secure the EU energy supply.

3.4 renewable energy and collective security as alternatives

Hypothesis 4-1: the greater the scarcity is, the greater the threat to energy security is, the more desirable to renewable energy is;

Hypothesis 4-2: the growing difficulties to enforce energy security cooperation within the existing institutions make a collective security arrangement likely.

The rational choice approach provided us an insight: the cooperation is necessary; the collective action problem can be overcome by the interdependency stemmed from the common interests and mutual concerns among nations. The international institutions, which are built on agreements of participants who respect the rules of law, are main

instruments to facilitate achieving the goals. However, there are two concerns remained persistently in disturbing the enforcement of cooperation regarding to energy. First, it is the scarcity of energy. The logic is that the recourse's scarcity is a threat. "Scarcity's political consequences are derived from its objective and anticipated economic impacts: if economic effects occur rapidly and in circumstances of uncertainty, the potential for inequities, conflict, and crisis pressures on governments are substantial"(Gurr 1985). "The connection between increased scarcities, defined in its objective sense as a sustained increase in the costs of essential goods relative to incomes and perceptions of resource scarcity is problematic. Even the liberalized market can not solve the distribution of resources unless it can be replaced in the future'"(Gurr 1985).

Obviously, the only solution to abandon or diminish the perception of scarcity resource is to find a replacement of energy and increasing the energy efficiency in order to slow down the path of energy consumption. The EU has been long focusing on developing renewable energy to replace fossil fuel in industrial uses. At present, nuclear energy does play a vital role in the sustainable production of electricity. In 2006 it produced 29% of electricity in Europe compared with 15% from renewable (European Commission: COM 2008/744). This strategy is accompanied with the ambitious climate policy targets, such as the increase in the share of renewable energies for up to 20% in the overall EU energy consumption by 2020 (European Commission: Directive 2009/28/EC) and whether nuclear energy can be considered as a carbon-free energy source. However, the largely unresolved political problem of nuclear waste and the high infrastructure costs may constrain some of the too 'optimistic' forecasts for nuclear power in Europe. Therefore, the dependency on gas and fossil fuel will last for a certain period of time.

Efficiency for end-users is to be understood as same outcome with a lower input of energy, which means saving energy and lowering costs. In the industrial sector, rising efficiency stands for the lesser use of energy per unit produced and thus decoupling energy-input and economic growth. In 2007 the EU agreed on the common goal to increase energy efficiency to reduce energy-usage at 20% until 2020 (Council of European Union 2007). To do so, the EU's plan is to "towards a European strategic energy technology", focusing on efficiency, diversification, and trans-European interconnection, to sketch out possible progress for having a safer energy future (European Commission: COM 2006/ 847 final).

Secondly, the concern comes from the United State's increasing intolerance towards Russian political ambitions in Europe and the Central Asia. In 2007, Russia, Kazakhstan, and Turkmenistan signed an energy deal that secures Kazakh and Turkmen natural gas for exclusive Russian distribution. It represents the first public acknowledgment by Russia's inability to meet European gas demands with exclusively Russian supplies. The increasing EU energy dependency on Russia stimulates the Americans urging its Atlantic allies to diversify its energy supply recourses as well as developing the applications of new or renewable energy (Cohen 2006; Garibaldi 2008). Nevertheless, as one of the core national security strategies, to maintain a stable, liberal Europe becomes a serious concern of the U.S government. The disputes between Russia, Ukraine, and Belarus over energy supply were regarded as an indication that "European energy security represents a serious strategic challenge for the transatlantic alliance" (Garibaldi 2008).

The European Union's *Energy Infrastructure Dimension* (EIS) was introduced as a follow-up effect of the growing import addiction more

energy resources have to be transported over even longer distances, which make a supply security strategy indispensable. Although the EU does mention the use of CFSP/ESDP (*European Security and Defense Policy*) as instruments, however, it does not clarify how those might be used.[4] Meanwhile, the Bush Administration proposed the NATO' engagement with the EU energy security.[5] To echo the concerns, NATO self-proclaims its role in "supporting a coordinated, international effort to assess risks to energy infrastructures and to promote energy infrastructure security".[6] Some scholars also argue that the NATO may secure pipelines and chokepoints, which require augmented monitoring as well as the development of multilateral rapid-response capabilities (Yergin 2006).

4. Conclusion

To sum up, for the sake of energy dependency, the cooperation between the importing-exporting-transiting counties is desired by the EU member states and non-EU countries. However, the existing institutional arrangements are far from efficient to converge the expectation of all EU member states on the ground of divergent attitudes towards energy market liberalization and the Russian engagements in the European Union. The failures are reflected by the distrust and desires for pursuing a relative gains amongst actors. The speculation of establishing collective security strategy for securing the EU energy supply emerges from both EU institutions alongside with some member states, and the U.S government. The differentiation between the two is whether the collective security arrangements shall be operated within the framework

[4] Council of the European Union: Presidency Conclusions, 10633/1/06 Rev 1, Brussels, 17. July 2006, p. 10.
[5] Senator Richard Lugar raised the possibility of NATO in securing EU energy security during the Bush Administration in 2006.
[6] See: http://www.nato.int/docu/pr/2006/p06-150e.htm

of European common foreign and security policy or within the NATO. Even so, as long as the disagreement amongst the EU great states remains, Kupchan's concert-based approach seems unlikely to be feasible.

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