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Susanne Peters

ABSTRACT

With the phenomenon of economic globalization having absorbed our attention for the last decade, environmental challenges as well as the necessity to globally manage the distribution of resources have been neglected. This paper focuses on the potential for future resource conflicts among states that – as will be argued – will be fought along the axis of the consumers and producers of energy. Conflict over resources can be provoked by the increased energy import dependency of some Western states, and intensified by an anticipated oil supply crisis, the effects of which are expected to set in after 2010. The strategies of the West to prevent and manage this type of conflict - risk reduction, crisis management and geopolitics of energy - will be evaluated according to their effectiveness. It will be argued that these strategies might be effective in the short- and mid term but are inadequate in the long term, and that Western states cannot depend on them to prevent a conflict over fossil fuels. The focus of the study is the EU and its precarious strategy of “risk reduction” which, in effect, places all the eggs in the Russian basket. The discussion of Western crisis management as implemented by the International Energy Agency also points to their lack of reliability and effectiveness in managing a severe shortage crisis. The third strategy to prevent and manage the supply crisis for the West - a geopolitics of energy – might work in the short run by furnishing Western states’ control of cheap oil, but is counterproductive in the long run because it deepens the chasm between them and the producer countries on whose energy they depend. The only two effective and complementary strategies for avoiding conflict over resources are the reduction of the dependency on fossil fuels by developing alternative and renewable energy, and, most of all, the pursuit of a global policy based on more equitable and controlled energy distribution.

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1. INTRODUCTION¹

Following the end of the Cold War, there was a short period of time when it looked as if the world was entering an era of political stability, enduring peace, and the absence of conflicts. It was at this time that Francis Fukuyama wrote his famous book “The End of History and the Last Man”, which announced that the global spread of capitalism and liberal democracy would bring global prosperity and peace, even to the third world. Neo-liberal institutionalism, with its promotion of globalization, gained prominence among international relations theories, with its promise of the progressive disappearance of conflicts as a result of the pacifying effects of globalization. It did not take long for this dream to be shattered: a new wave of ethnic conflicts with unprecedented dimension and geographical spread brought home the message that domestic conflict would proliferate rather than decline in the post Cold War era. The 1991 Gulf War, in which three Western powers were directly involved, and the 2003 Western coalitions’ war against Iraq made it more than evident that interstate war is not a relic of the pre-globalization age. Another dimension has to be added to explain the dynamics of global security: namely, the present and future potential for resource wars.

In the following, I will discuss the potential for future resource conflicts among states that – as will be argued - will be fought along the axis of the consumers and producers of energy. Conflicts over resources can be provoked by the increased energy import dependency of the consumer states, and intensified by production shortages of global fossil fuels, in particular, the most viable resource: oil. The strategies of the West to prevent and manage this type of conflict - risk reduction, crisis management and geopolitics of energy - will be evaluated according to their effectiveness. It will be argued that while they might work in the short- and mid term, they are inadequate in the long term, and Western states cannot therefore depend on these strategies to prevent future conflict over fossil fuels. The discussion focuses on the EU and its strategy of “risk reduction” vis-à-vis Russia by securing energy supply from one of their main suppliers through treaties and partnership arrangements. Western crisis management as implemented by the International Energy Agency also points to their lack of reliability and effectiveness in managing a severe shortage crisis. The third strategy to prevent and manage supply crisis for the West - a geopolitics of energy – might work for a certain region and for a certain duration by furnishing Western states’ control and access to cheap oil, but is

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counterproductive in the long run because it only serves to deepen the chasm between themselves and the producer countries on whose energy they depend. The only two feasible and complementary strategies are the reduction of the dependency on fossil fuels by developing alternative and renewable energy, and the pursuit of a more equitable policy of global energy distribution.

In the following, it will be argued that post-Cold War international relations is characterized by a negligence of “resource wars.” Moreover, it will be illustrated that renewable resources like minerals and fossil fuels, which are the traditional objects of resource wars, are excluded in the field of environmentally caused conflicts. Anticipated shortages in oil production will be discussed as a further exacerbating factor explaining the potential for resource conflict. Subsequently, the analysis will focus on new energy supply vulnerabilities on the part of the EU and its strategy of “risk reduction”, which will be identified as a precarious strategy since it puts all eggs in the Russian basket and the suspended Energy Charter Treaty. Also the West’s, more specifically the OECD’s, inadequate crisis management of the International Energy Agency will be highlighted, as well as the implications of a Western geopolitics of energy.

2. THE NEGLIGENCE OF “RESOURCE WARS” IN POST-COLD WAR INTERNATIONAL RELATIONS

The connection between resource and environmental disruption with violent conflict has been long acknowledged and researched. In particular, the two oil crises of the 1970s were of utmost concern to Western industrialized societies at the time, and provoked research on how to prevent future oil supply crises. Since then, disruptions of energy supplies have been treated as a national security issue by the Western foreign affairs offices, to be met by the ultimate means of state force, the military. In international relations, several studies appeared at this time that put the oil crisis in the context of the North-South conflict and the South’s demands for a New International Economic Order. This reflected the Western states’ new awareness for their dependency on the developing world’s commodities and resources. Studies of this sort discussed the prospects for armed encounters between North and South in terms of “politics of scarcity”, “necessity of resource management”, and “the oil weapon”.² But interest in this kind of analysis faded after the 1970s for two reasons: 1) globalization has taken the bite out of the North-South conflict by smoothing the deep division between developing and developed states, and 2) after the shock of the two oil crisis of the 1970s, the Western states successfully

² See Arad et al. and, for further references, see the list in Arad et al., p. 205.

reduced their dependency on the Middle Eastern states by diversifying their suppliers.

It was, rather, international relation’s subfield of “environmental conflict” that explained the connection between environmental disruption and violent conflict.³ Since the end of the 1960s, when “environmental conflict” emerged in response to the new awareness of environmental issues, the research field has produced instructive insights into how to prevent conflicts concerning access to natural resources and clean environment. With its focus on the domestic level of conflicts, “environmental conflict” has been particularly prone to explain the massive outbreak of violent ethnic and tribal conflicts that erupted after the end of the Cold War. But the two major interstate wars of the post-Cold War era, the 1991 Gulf War and the 2003 Western coalition’s occupation of Iraq, which were also fought for the control of the region’s oil, have been ignored and left unexplained. In addition, in the field of international relations, research on interstate conflicts faded in the 1990s. Two developments are responsible for this trend: 1) economic globalization gave a boost to theories which believe in the conflict-reducing effects of the globalized economy (such as neo-liberal institutionalism) and 2) new international relations theories, such as post-structuralism and Neo-Marxist theories, are not designed to incorporate a variable such as “resource conflict” if only because they continue social science’s tradition of not recognizing “nature” as a potential factor for social action.

In international relations, the classical domain for “interstate wars” has been realism. With its assumption that conflict and insecurity are constant features of the international system, it was considered to be the most adequate theory to explain the Cold War period. However, with the end of the Cold War and the disappearance of the major threat to the West, realism seemed to be out of touch with reality, giving way to the establishment of neo-realism as its successor. However, neo-realism is not offering any analytical framework for conflict prevention because it expects and explains conflict, but is incapable of accounting for change. Moreover, with its tenets of realism that states have to pursue their national interest – if necessary at the expense of morality – neo-realism rather provides subsequent justifications of “resource wars” than useful explanations of how to avoid them. Also, at the end of the 1980s, theories with a focus on the role of economics in international relations seemed more apt to explain the new reality of an intensified globalization process, giving a boost to theories belonging to the school of neo-liberalism, such as neo-liberal institutionalism. These theories are based on the assumption that the global spread of neo-liberalism would yield greater interdependency among states and

³ For a good overview of the field’s development see Deudney, “Environmental Security”.

make their borders more permeable, thus fostering international cooperation and world peace. Therefore, in due course, conflict would disappear as a dominant feature of the international system. Thomas Friedman, in his bestseller on globalization, explained in more detail how conflicts would be eradicated by the democratization of technology, finance and information resulting from economic globalization.⁴ Fed by the works of classical economists and their non-recognition of limits, Friedman argues that countries are no longer “prisoners of their natural resources, geography and history” and therefore can “choose prosperity”⁵. Instead, in an era of globalization, a country’s national wealth is determined by its technology and the forms of its institutions and investments. Thus, theories promoting globalization and global neo-liberalism fail to explain violent conflict: in particular, conflict over the distribution of natural resources.

The current negligence of the notion of “conflict” in post-Cold War international relations has been further exacerbated by, as Daniel Deudney has brought to our attention, the rise of theories that continue social science’s tradition of neglecting nature as a critical factor in social outcomes - in defiance of three decades of environmental debate.⁶ As a challenge to the prevalence of neo-liberal ideas, Neo-Gramscian theories gained new attention and acknowledgment in the 1990s. As a Marxist approach, Neo-Gramscian theory has “little regard for the role of natural resources in the economic process”.⁷ Following Marxists’ belief that “nothing can have value if it is not due to human labour”⁸, Neo-Gramscians conclude that materials provided by nature are free and therefore are of “no value”. Consequently, Neo-Marxists do not pay much attention to the conflict potential of natural resources or environmental degradation. Likewise, post-structuralist theories, which gained increasing recognition in international relations over the last decade, are also not prone to incorporate any variables relating to environmental scarcity or resource conflicts. With their “uncompromisingly anti-empirical”⁹ tenet, post-structuralists strive to overcome structuralism and emphasize that reality is socially constructed, that social practices are constructed by humans and are not themselves natural. But Deudney objects to this notion by arguing that social practices succeed or fail, not only “because of socially constructed criteria, but rather because of their ability to function successfully in meeting enduring human needs in material contexts that are both diverse and shifting.”¹⁰

⁴ See Friedman.

⁵ Friedmann, p. 197. Based on the work of Michael Porter. See Porter, pp. 14-15.

⁶ See Deudney, “Bringing Nature Back In”.

⁷ Barbier, p. 19.

⁸ Quoted in Barbier, p. 19.

⁹ Rosenau, p. 3

¹⁰ Deudney, “Bringing Nature Back In”, p. 50.

Therefore, in his widely recognized article “Bringing Nature Back In” he pleads for a “move beyond social-social science, and back to natural-social science.”¹¹

Per definition, the field of “environmental conflict and security” would be the classical field to cover resource wars.¹² As Deudney has shown, in spite of its “antirealist rhetoric”¹³, “environmental conflict and security” would be closest to realism among the international relations theories since it is rooted in geopolitical and natural realism. In the beginning, “environmental conflict” was not limited to the concern for the environment but included “extrapolations from the fears of resource wars”¹⁴, which were developed in the context of the 1970s’ oil crises, the formation of commodity cartels, and rapid price hikes in natural resources.¹⁵

In order to enhance the awareness of environmental problems, researchers committed to this subject started to advocate to link national security with environmental issues. This approach kicked off an intensified debate on the merits of such a link, with neo-realists in particular pleading for excluding environmental issues from security studies in international relations. The debate gained new momentum with the end of the Cold War when the military and security community itself which, in fear of losing significance and legitimacy, discovered “environmental security” as a useful replacement for the loss of the major threat to the West. The focus shifted to the Third World as the place where new risks and threats to Western stability originated, including environmental degradation and catastrophes. This notion of new security threats coming from the Third World has been epitomized by Robert Kaplan’s apocalyptic prophecy of his 1994 article “The coming anarchy” in which he argued that the defining element of the future world would be anarchy, caused by environmental scarcity, crime, overpopulation, tribalism, and disease. He concluded that “the environment” is “*the* national-security issue of the early twenty-first century.”¹⁶ Simon Dalby, who represents the other side of this polarized debate, argues that “environmental security” can be easily exploited by the North. By asserting that environmental catastrophes in the South could spill over and destabilize the Northern states, he claims that the West has a means to legitimize its constraints and to control Southern development, thus guaranteeing “that Northern economic interests continue to have access to the

¹¹ Ibid, p. 30.

¹² Other terms for this field are “environmental degradation” and “environmental scarcity”. In the following, according to the context “environmental conflict”, “environmental security” and “environmental conflict and security” will be used interchangeably.

¹³ Ibid, p. 26

¹⁴ Deudney, “Environmental Security”, p. 188.

¹⁵ For an insightful debate on the benefits and weaknesses of “environmental conflict” see Gleditsch.

¹⁶ Kaplan, p. 58.

traditional cheap Southern labor and resources.”¹⁷ The first Bush administration seemed to follow the arguments of the advocates of linking environmental degradation with security and, in 1991, the Department of Defense (DOD) for the first time included the environment in its *National Security Strategy of the United States*.¹⁸

In general, “environmental conflict” focussed on *renewable resources* as a cause for conflict. But Arthur Westing’s 1986 widely quoted study explicitly included non-renewable resources as a cause for interstate and intrastate war. Moreover, of his list of 12 conflicts of the 20th century that all concerned access to natural resources, more than half were triggered by a dispute over access to the *non-renewable resource* oil (7 out of 12), even if indirectly (such as in the Malvinas case, in which the existence of off-shore oil was assumed rather than proven).¹⁹ Accordingly, Westing concluded:

Global deficiencies and degradation of natural resources, both renewable and *non-renewable*, coupled with the uneven distribution of these raw materials, can lead to unlikely – and thus unstable - alliances, to national rivalries, and, of course, to war.²⁰

But Westing seemed to remain an exception, and the field’s tendency to exclude non-renewable resources from its research intensified in the post-Cold War era. “Environmental security” was usually defined as referring exclusively to a depletion and degradation of renewable resources, which are “all prime components of a nation’s environmental foundations”, such as water, forests, soil, fisheries and climate.²¹ Two developments contributed to the exclusion of the “traditional objects of resource conflicts”²² in “environmental security”: 1) the first decade of the post-Cold War era experienced a massive wave of ethnic and tribal conflicts. Tribes and ethnic groups usually do not fight for minerals or fossil fuels; their life is more affected by the denial of access to fresh water or fertile soil. Disputes over access to and possession of non-renewable resources is more the domain of states, because fossil fuels and minerals are necessary constituents of any war production and can be more easily converted into state power than, for example, fish and forests. Therefore, environmental security

¹⁷ Dalby, p. 160.

¹⁸ Butts, p. 110.

¹⁹ The conflicts range from both world wars to secession, decolonization and civil wars. See Westing, Appendix, p. 204-210.

²⁰ Westing, p. 1, emphasis added.

²¹ Myers, p. 20.

²² Libiszewski, p. 4.

was encouraged to intensify its focus on the domestic level of conflicts.²³ And 2) in view of very low oil prices and an obvious oil surplus, it seemed inconceivable that a severe oil supply crisis such as that of the 1970s could repeat itself.

Homer Dixon is one of the leading scholars in the field and his research reflects these features of the post-Cold War era in an exemplary way. His research on “environmental scarcity” focuses exclusively on the domestic level and on renewable sources as causing, at least in part, “a steady increase in the incidence of violence conflict”²⁴ in the coming decades. His claim that renewables are crucially different from non-renewables²⁵ is based on the assumption that there exists an oversupply of non-renewables. He argues that even if scarcity of non-renewables occurs, it might be only temporary and could “be overcome without undue hardship in modern economies.”²⁶ As evidence for this argument, he refers to the decline in prices of metals and minerals in response to new findings, new technologies in extraction and substitution, and a reduction in demand by conservation and production efficiencies. Homer Dixon quotes Robert Repetto to make the point that “(i)n economic terms, exhaustible resources have not become significantly more scarce over the past century and, by some measures, most have become less scarce.”²⁷

Daniel Deudney’s optimistic view that the prospect of resource wars is very slim is based on his unchallenged confidence in the achievements of technology for substituting non-renewable resources.²⁸ Moreover, Deudney’s views demonstrate to what extent this kind of optimism is linked to the ideas of neo-liberal institutionalism and globalization and their tenet of the positive effects of capitalism and international trade. Deudney argues that the prevalence of global capitalism and the intensification of international trade will enhance the efficiency in resource use, make violent conflicts more costly, and reduce incentives for territorial conquest. In this way of thinking, there is no space for the notion of a “non-renewable resource scarcity” that is induced by production restrictions or depletion. Rather, scarcity is managed successfully by the “robust character of the world trade system” to such a degree that resource dependencies are no longer experienced as threats to states. Deudney concludes as follows, in obvious failure to anticipate the US motivations for its most recent occupation of Iraq:

²³ This does not mean that there was not any research relating to the state level, for example, on the effects of climate change on interstate war. But when interstate war was addressed in “environmental conflict”, it usually concerned border conflicts between third world countries.

²⁴ Homer-Dixon, p. 4.

²⁵ Ibid, p. 113.

²⁶ Ibid, p. 33. Though he refers explicitly to metal, not to oil.

²⁷ For this argument, Homer-Dixon refers also to the 1992 World Development Report, p. 33.

²⁸ Deudney, “Environmental Security”, p. 206.

(T)he resource needs of contemporary states are routinely met without territorial control of the resource source.²⁹

While the ignorance of “resource wars” in the field of “environmental security” is unconvincing, a decoupling of renewable and non-renewable resources in research is necessary and justified. Disputes over environmental factors seem to follow a very different pattern than those concerning fossil fuels, if only for the fact that they are fought on different levels of societal organizations. Accordingly there are very different lessons to draw for conflict prevention. A key variable identified in the analysis of Homer Dixon, for example, is the role of “ingenuity” as a means to reduce societies’ vulnerability to “environmental scarcity’s harsh social effects.”³⁰ The “quantity of ingenuity” a society develops in response to environmental scarcity can play a key role in determining its ability to adapt to that scarcity. Some of his recommendations for how to overcome a society’s ingenuity gap might be also applicable to exhaustible resources, but an incorporation of non-renewable resources in his framework would require careful analysis and modifications.

Stephan Libiszewski from the Bern ENCOP research group explains why both forms of resources have to be treated differently and why non-renewable resources should be excluded from the field of environmental security:

The main fields we think of when we speak about environmental problems, namely fresh water, soil, forests, air, atmosphere and climate, oceans and biodiversity, represent all renewable “goods” or “services”. They are renewable because they are ecologically integrated in a feedback circle system which guarantees their replacement or the preservation of their quality. Minerals and fossil fuels, on the other hand which are the traditional objects of resource conflicts, are non-renewable resources because they are not integrated in such an ecosystem. Therefore they can be depleted but they cannot be degraded.³¹

In a response to his critics, Homer Dixon rejects Libiszewski’s recommendation to restrict the field to the analysis of conflicts caused by *degradation* of environmental resources. But, again, only renewables get his attention, as he argues compellingly that cropland and freshwater also can be subject to depletion – without using this opportunity to start to address the field’s problematic exclusion of non-renewables from any analysis.³²

²⁹ Ibid, p. 205.

³⁰ Homer-Dixon, p. 125.

³¹ See Libiszewski, p. 4.

³² Schwartz et al., p. 274.

Thus, the focus on renewable resources in “environmental conflict” at the expense of non-renewable resources is a logical reflection of the post-Cold War era, which has been characterized by an oversupply of non-renewable sources as well as an outbreak of violence mostly below the state level. The downside of the field’s constriction is obvious: “environmental security and conflict” focuses exclusively on the underdeveloped third world, while conflicts with Western involvement are ignored. This applies to the 1991 Gulf War, in which a resource factor was undeniably involved, as well for the 2003 US-led war against Iraq, in which the resource component seems to have been one of the critical factors for provoking it. A debate should begin concerning whether it makes sense that “environmental conflict” fills this research gap or whether new subfields should be developed to analyze resource wars and the conditions which might precipitate such wars in the future.

Not only the most recent occupation of Iraq brought home the message that non-renewable resources might play a significant role in future violent conflicts. By the end of the 1990s, new trends emerged that are bringing back the focus on the interstate level and non-renewable energy as a potential cause for violent conflicts: ever more experts warn of a future oil supply crisis and an increasing energy import dependency of some Western states. Therefore, the notion of “resource wars” should be reintroduced in the research agenda of international relations. To that end, two developments should be encouraged: in international relations theories, it should be acknowledged that nature is also a determining factor for human action and social outcome - without being immediately accused of drifting into Neo-Malthusian waters. The subfield of “environmental security and conflict” should question its implicit assumption that violent conflicts are almost exclusively restricted to the domestic level of third world states or to border disputes among third world states. When production of oil falls and, considering that on a per capita basis the North uses nine times as much energy as the South, conflict potential between the almost exclusively energy-producing states of the South³³ and the energy-consuming states of the North is destined to build.³⁴ Therefore, the assumption has to be questioned that the North-South conflict – or however we label the gap in wealth between countries in the North and in the South - is a relic of the pre-globalization age.³⁵

3. PROSPECTS AND CAUSES OF OIL SUPPLY CRISIS

³³ With the exception of Russia, which is a major energy producing state but belongs to the North.

³⁴ According to Goldstein, based on 1992 figures, the global South with 76 percent of the world’s population accounts for only 26 percent of the world’s aggregate energy consumption, Goldstein and Huang, pp. 241-266.

³⁵ One important contribution in this respect is the book of Michael Klare, which encompasses both renewable and non-renewable sources as motives for conflict, and the state as well as the sub-national level on which these conflicts are fought.

Among non-renewable resources, oil is the most important in the economies of the industrialized countries. It is an extensively used raw material and an important factor for transport³⁶ and the agricultural sector. The petrochemical sector would collapse without oil supply and, so far, no replacement is in sight. In particular, the agricultural sector has become energy-intensive in every respect: farm machinery depends on diesel fuel or gasoline, fertilizer production requires natural gas, pesticides and herbicides are synthesized from oil, and transportation and processing of agricultural products also depend on oil.³⁷ But with oil prices plunging to record lows during most of the 1990s, there seemed to be no reason to think about the West's heavy dependence on its supply. Moreover, in the 1970s, we all were subject to the alarming predictions of the Club of Rome's "Limits of Growth", which were based on incorrect forecasts in terms of demand growth and, therefore, misleading.³⁸ However, 30 years later, it now appears that new problems and crises are on the horizon with respect to energy supply, and not only with oil, but also with gas – though in a more long-term perspective. The dramatic increase of oil prices during the last three years – at one point, by as much as 300% – reflects the shortage of available spare capacity and the vulnerability of the current supply system. Thus, the question of how long the oil reserves will last gains new urgency. For an evaluation of this question, one needs to look both at the demand and the supply side.

While there is much debate with regard to supply, i.e., to what extent and with what speed the pie is getting smaller, there does not seem to be any disagreement that demand will increase significantly in the coming decades. According to the World Energy Outlook of the International Energy Agency, the most authoritative source for providing forecasts on the outlook of world energy, demand for oil is expected to rise between 1997 and 2020 at a growth rate of 1.9% per year. In the developing world, demand will rise three times as fast as in the developed world, from today's 43% of total world oil consumption to 55% by 2020. Most of the demand will come from the transport sector, where chances for a significant substitution are not yet on the horizon³⁹ But it is on the demand side where hopes are high to reverse the threatening prospects of an

³⁶ Including shipping and aviation.

³⁷ See the insightful chapter by Heinberg, pp. 175-179.

³⁸ Prior to the report, oil use had been growing at around 7% per year, and the calculations of *The Club of Rome* assumed that if this growth was going to continue, oil reserves would be exhausted in a surprisingly short time. Still, many predictions of that time proved correct. See Roger Bentley, "Oil Forecasts, Past and Present" *International Workshop on Oil Depletion*, Uppsala, Sweden, May 2002. One notable example is that of Dr. Hubbert, who predicted that the US would peak as the world's largest oil producer in the early 1970s. The US peaked at a daily production of about 9.6 million barrels per day around 1970. Today, the US has dropped to about 3.4 million barrels per day and imports 60% of its daily petroleum. Still, the US is the third largest oil producer in the world. See Matthew Simmons, "Depletion and US Energy Policy", *Uppsala Workshop*, May 2002.

³⁹ IEA, 2001, p. 35.

energy crisis by implementing efficient energy saving programs and by developing commercially profitable alternative energy – at least in the OECD.

The forecasts for the supply side is much more complex and controversial. Due to the geological condition of fossil fuels, located deep in the soil, off-shore, and in polar regions, predictions and estimates of the remaining base of all oil and gas resources are naturally hard to make. Moreover, there is significant disagreement and confusion among the various forecasts on the definitions of "reserves", which makes it even harder to compare them. The most important swing factor in the forecasts is the category of non-conventional oil. Non-conventional oil comes from oil shale, tar sands, enhanced recovery, hostile environments (such as deep or polar water), very small accumulations, heavy oil, and also comes in the form of Natural Gas Liquids (NGL). Non-conventional oil is difficult and expensive to extract, and the crucial question for the future will be to what extent technology will develop to facilitate access to this non-conventional oil. Some estimates therefore separate these two categories; others aggregate data of the conventional and unconventional oil. There are three different parameters by which the degree of depletion of fossil fuels is estimated.

3.1. R/P Ratio and Peak Production

Most analyses use the category of a global oil "reserves-to-production ratio" (R/P ratio) to indicate the "theoretical expected lifetime of reserves under constant production at the current level."⁴⁰ This ratio estimates the global R/P ratio as being enough to provide 40 years of supply at current rates⁴¹, thus, any risk for oil supply is dated well beyond the 40 years. But the R/P ratio is misleading as an instrument for indicating the years of affordable oil remaining, since it does not factor in fluctuations either in demand or in production capacities. In reality, there exists nothing close to a constant production level in a country, since the past has shown that the production ratios of the main producer countries have varied greatly over time due to the level of investment in production infrastructure, the use of new technologies, etc. And even more importantly, as some scientists argue, depletion of oil does not follow the pattern of a constant production rate with a sharp decline when the last drops of oil are extracted. According to the model of the geologist M. King Hubbert, oil discoveries and oil production follow similar trajectories in the form of a bell curve with a midpoint of depletion which corresponds approximately to peak production. Peak production means that half of the world's finite supply of conventional oil will have been consumed. After peak production comes

⁴⁰ Luciani, 2002, p. 13.

⁴¹ See Bentley, p. 198.

shortage because production is slowly going to decline, a process we are witnessing currently for US and North Sea oil production, both of which reserves have already “peaked”.⁴²

It is this declining production after the midpoint of depletion, “in other words unsatisfied demand, that is the key factor about future oil supply”⁴³. Scientists following the Hubbert model of oil production therefore believe that the assessment of the “midpoint of depletion” is a more valuable indicator for the time remaining to confront and compensate for the irreversible depletion of the finite resource oil. There is considerable disagreement about when this peak occurs, but according to Giacomo Luciani “(n)evertheless the reality of a global peak is not under discussion: production has been declining for many years now in the United States, and is expected to soon decline in the North Sea.”⁴⁴ According to an international group of petroleum specialists (Association for the Study of Peak Oil, ASPO), the world supply of oil will peak as early as 2010, provoking soaring energy prices and economic upheaval.⁴⁵

3.2. Remaining Reserves and Yet-to-find

The forecast for the peak of production depends on the estimates of the remaining and yet-to-find reserves of conventional and non-conventional resources, which is a third category that indicates the process of depletion. There is no disagreement that so far 1700 Gb of oil have been found in the world. Moreover, most of the more than 60 estimates that have been made in recent decades indicate that the total ultimately recoverable quantity of *conventional* oil would be somewhere around 2000 Gb.⁴⁶ However, there are authoritative estimates that deviate grossly from this average. In a 2000 study, the US Geological Survey delivered a considerably higher figure. The USGS estimated that, with a 50% probability, the world’s remaining oil would add up to 2300 Gb, with a 95% probability to 2100 Gb and with a 5% probability to 2800 Gb. In a second analysis, the USGS included the factor of “reserve growth”, based on the US experience in which (by applying new technology and methods) more oil than expected could be pumped.⁴⁷ The USGS then

⁴² For a good explanation of Hubbert’s peak model see Deffeyes, chapter 7.

⁴³ Bentley, 2002, p. 198. For an extensive analysis of these arguments see *Global Challenges Network*, 2002.

⁴⁴ See Luciani, 2001, p. 3.

⁴⁵ See press release of the *Association for the Study of Peak Oil (ASPO)*, Uppsala 2002. BP has adopted ASPO’s depletion model in the official Norwegian Petroleum Diary (No.3, 2002) to demonstrate its serious commitment to solar energy.

⁴⁶ Campbell, according to T. A. J. Martin’s “Prediction of strategic reserves in prospect for the world oil industry” in Tim Niblock and Richard Lawless, *Prospects for the world oil industry: proceedings of a Symposium on the Energy Economy*, 1985, University of Durham, pp.16-39. Martin’s list dates until 1985 with 58 titles Campbell has since updated and completed the list.

⁴⁷ See Campbell in *Geotimes*, November 2002.

assigned probabilities to these “reserve growths.” With the inclusion of this new category, the study arrived at gigantic “headline” ultimate reserves of 2300 Gb with a 95% probability, 3000 Gb with a 50% probability, and 4000 Gb with a 5% probability.

A key factor responsible for the substantial variations in these studies is different expectations of how much oil is yet-to-find. Expectations of the remaining undiscovered reserves depend on interpretations of past discovery patterns, from which scientists extrapolate future discovery trends. But even past discovery trends are read differently by geologists and oil experts. ASPO scientists argue that the big discoveries have all been made. According to their interpretation, the peak of discovery occurred in the 1960s and the discovery rate has fallen dramatically in the last 35 years, now averaging about 10 Gb/yr.⁴⁸ This finding has recently been confirmed by oil company executive, Harry Longwell, Director of Exxon Mobile⁴⁹. On this basis, ASPO member Colin Campbell estimates a yet-to-find figure of 130 Gb. At the other extreme, the USGS forecasts three times more than ASPO, projecting an average of 30 Gb found oil per year. Their study suggests that, with a 50% probability, another 732 Gb will be found between 1995 and 2020, assuming that US know-how is applied in the rest of the world.

One of the reasons for the surprising differences of interpretation in past discovery trends is distortion in the reporting of proven reserves, which are published unquestioned and unchanged year after year by the BP Statistical Review. While it is widely believed that BP provides its own estimates, it merely reports *Oil & Gas Journal* non-backdated reserves as reported by governments. Assessments of reserves are subject to diverse political motivations to understate or overstate the quantities involved. In the 1980s, several OPEC countries reported considerable increases in reserves, which misled oil experts into believing that we “are running into oil”.⁵⁰ But this sudden “reserve growth” was not caused by changes in the OPEC countries’ reservoirs, but rather by a “quota war” among several OPEC members, because production quota depends on the quantity of the reserve base.⁵¹ It started with Iraq, when it added an eleven billion barrel increase that in fact was a delayed report of a discovery in the late 1970s. Venezuela followed by doubling its reserves in 1987 by the admission of, at that point, large amounts of *heavy* oil it had found long before. Iran, Iraq, Abu Dhabi, Dubai and later Saudi Arabia felt compelled to counteract Venezuela’s action by reporting huge increases of their

⁴⁸ Bentley, 2002, p. 200.

⁴⁹ See Longwell, 2002, Figure 3, p. 101.

⁵⁰ For details on this see Bentley, 2002, p. 197.

⁵¹ For details see Colin Campbell, 1998 and 2000.

own, practically overnight. The actual figures might be somewhere in the middle, because the old numbers (provided by the companies before being expropriated) could be understated. Moreover, it is implausible that a large and increasing number of countries report unchanged numbers year after year although “production eats into reserves.” More than half of all countries with reserves reported by the *Oil and Gas Journal* and hence also by the *BP Statistical Review* are not generally reporting reserves changes.⁵²

In order not to lose orientation in this jungle of polarized figures, governments and institutions tend to rely on the energy estimate of the *International Energy Agency* (IEA) and its annual *World Energy Outlook*. In 1998, the *World Energy Outlook* for the first time launched a warning that soon there might be an oil supply problem. For the year 2020, the report estimated a total oil demand for 111.5 million barrels per day, which is juxtaposed to 92.3 million barrels a day of world oil supply. Thus, global demand would have a deficit of 19.2 million barrels a day in 2020. These missing barrels of oil were then miraculously matched by a category labeled “Unidentified Unconventional Oil”, declared at 19.1 million barrels a day and just compensating for the deficit between supply and demand. As a consequence of this analysis, the report estimated that the peak of conventional oil production might arrive before 2020.⁵³ These data have been understood as a message by some IEA agents to their client states that there might be soon a problem. But the IEA staff member in charge of this part of the report, J. M. Bourdairé, left the IEA shortly thereafter, and with the publication of the upbeat 2000 USGS report, subsequent annual IEA reports are again much more optimistic.⁵⁴ The IEA 2002 report starts from the assumption of “ample” oil resources, though it also warns that “more reserves will need to be identified in order to meet rising oil demand to 2030.”⁵⁵

However, it is obviously not necessary to start from the assumption of a progressive decline of the oil resource base in order to foresee serious problems with future oil supply. An independent task force, set up in late 2000 by the Baker Institute and the Council on Foreign Relations on the “Strategic Energy Challenges for the 21st Century”, comes up with an alarming analysis:

As the 21st century opens, the energy sector is in critical condition. A crisis could erupt at any time from any number of factors and would inevitably affect every country in today’s globalized world. While the origins of a crisis are hard to pinpoint, it is clear that energy disruptions could have a potentially enormous impact on the US and the

⁵² Bentley, 2002, p. 197.

⁵³ *International Energy Agency*, 1998, p. 101.

⁵⁴ David LaGesse, *US News & World Report*, September 17, 2001.

⁵⁵ *International Energy Agency*, 2002, p. 29.

world economy, and would affect US national security and foreign policy in dramatic ways.⁵⁶

According to the authors of the report, this dramatic “energy challenge” has nothing to do with the global hydrocarbon resource base, which they believe is still “enormous”. Rather, it is prompted by energy infrastructure constraints combined with strong economic and oil-demand growth. First, too-rapid economic growth during the past has surpassed the production capacity of the oil and gas producers, rendering them incapable to keep up with increasing global demand. Second, for the last two decades the most important energy producers refrained from investing in production infrastructure due to the falling real prices for oil. Furthermore, the report identifies as a cause for this looming supply crisis a lack of trained energy sector workers and – with an eye to the more special US situation – the consequences of energy market deregulation and market liberalization. While the report’s authors are aware that “American people continue to demand plentiful and cheap energy without sacrifice or inconvenience,”⁵⁷ they also point out the reality that neither emerging new technologies or the necessary surplus energy capacity is on the horizon to meet such demands. Many of the independent task force’s recommendations have been incorporated in the “National Energy Policy”, a May 2001 governmental study on the state of affairs of US energy policy.

During the last few years, experts of the oil industry have joined the camp of those who warn of a supply crisis in the foreseeable future. This includes Franco Bernabé from ENI (the Italian energy company),⁵⁸ as well as the chief executive of ARCO, Michael Bowlin, who declared in February 1999: “We’ve embarked on the beginning of the last days of the age of oil.”⁵⁹ Also BP’s new corporate name “Beyond Petroleum” acknowledges that there will be a problem of oil supply in the future.⁶⁰ And Exxon Mobile’s Harry Longwell puts it as follows:

The catch is that while demand increases, existing production declines. To put a number on it, we expect that by 2010 about half the daily volume needed to meet projected demand is not on production today – and that’s the challenge facing producers.⁶¹

According to those who warn of a supply crisis but don’t see it caused by a dwindling resource base, the challenge is to develop the technology to exploit existing fields more sufficiently and to extract the reserves of unconventional

⁵⁶ Morse and Jaffe, 2001, p. 9.

⁵⁷ *Ibid*, p. 5.

⁵⁸ Franco Bernabé from ENI, paper given at the Oil and Money Conference, London, 17 November 1998, p. 3.

⁵⁹ Quoted in Flavin and Dunn, p. 168.

⁶⁰ See the *Economist*, November 6-12, 1999.

⁶¹ Longwell, 2002, p. 101.

oil in a commercially profitable fashion. This is the central point on which the debate will center in the future. But here comes the downside: if oil companies are to replace the output lost from aging fields and meet the world's ever rising demand for oil, the IEA reckons they must invest \$1 trillion in non-OPEC countries over the next decade alone. But it is more than questionable whether technology can really succeed in increasing the discovery rate to the extent necessary to satisfy demand. The fact of the matter is that for every two barrels used, only one new one is found.⁶²

The extent to which conservation strategies and the substitution of oil can compensate for the decline in oil production, and the time frame in which they may do so, is very hard to assess.⁶³ Some promising progress has been made, in particular with the replacement of oil with natural gas. The share of gas in generating electricity and heating is constantly increasing. But since gas is a finite resource, the replacement of oil with gas will not solve the problem but only "buy time" for a switch to renewable sources. New energy extractions (for example, from wind turbines and solar power) have made considerable progress, but in view of the investment and technology needed to turn them into a profitable energy sector, it will still take decades before renewables will constitute a considerable share of the energy mix. In any case, the biggest problem remains with transportation, where all hopes rest on the development of fuel cells produced from hydrogen. However, to turn fuel cells in a universal battery for transportation applications requires an entirely different energy infrastructure and a "transition to a hydrogen economy"⁶⁴. Moreover, it is a problem that the production of hydrogen currently relies mainly on natural gas. Thus, the production of the fuel cell will also eat into the dwindling gas reserves.

The ASPO scientists stress that there is no reason to panic and that there is time left to counter this looming supply crisis:

The World is not about to run out of oil. At peak, there is as much left as we have used so far, but we do need the high supply, while it lasts, to achieve an orderly transition.⁶⁵

But there are no signs of serious preparations for an orderly transition. With demand progressively surpassing production over the next decades, we can expect a fight over the distribution of the remaining resources, with the

⁶² Bentley, personal communication.

⁶³ See for this Heinberg and Global Challenges Network.

⁶⁴ Heinberg, p. 148.

⁶⁵ *ASPO Newsletter*, No. 9, September 2001.

South no longer prepared to accept the existing disproportional consumption of energy.

4. EU ENERGY SUPPLY: NEW VULNERABILITIES, RISKY STRATEGIES

While the question of when and how the oil supply crisis will hit the world is a controversial subject and debated heatedly in expert circles, there is no controversy about the increasing import dependency of some Western states. This new vulnerability, which carries the potential for inter-state resource conflicts, refers not only to oil, but also includes gas. On one hand, gas poses less of a potential supply problem for the Western world than oil, since it will take longer for gas supplies to run out. On the other hand, there are two problems related to increasing reliance upon gas as a primary energy supply: 1) while there exists a mechanism for dealing with interruptions in oil supplies, there is no equivalent mechanism for gas at the EU level or, more widely, in the IEA framework⁶⁶ and 2) there is a fundamental difference between oil and gas: gas, unless it has been transformed into liquid gas (LNG), can only be transported by pipelines directly to its customers and therefore requires long-term contracts between producers and consumers. In contrast to gas, oil only needs pipelines to be transported to transshipment points where it is loaded on ships for delivery to distant markets. This means that while there is a global market for oil, the corresponding market for gas is only regional. Should a crisis occur with the main suppliers, the options for diversification are therefore very limited.

Although the EU has been strongly in need of external energy resources, it started only in the mid 1990s to advance its own analysis and strategies to deal with potential supply crisis. After a short presentation of new EU energy vulnerabilities, the effectiveness of the EU strategy of "risk reduction" vis-à-vis Russia will be discussed in detail.

4.1. EU Energy Supply Vulnerabilities

Most energy policy is still made at the level of the EU member states and so far the EU Commission has failed in its goal to achieve formal competence for a Common Energy Policy (CEP). To boost the case for a CEP, the Commission has launched a series of papers starting with a Green Paper in 1995. It outlined the main foundations of such a policy, including the promotion of an Internal Energy Market, a common security of supply policy, and the consideration of

⁶⁶ P. Lambert, The European Union and the Gas Sector, *European Commission, DG 17*, November 1995, p. 2.

environmental aspects. Several other studies followed. In particular, the 2000 study “*Towards a European strategy for the security of energy supply*” is regarded as the key EU document in this context.

Oil Import Reliance

Europe’s oil import dependency will increase drastically in the mid-term future since North Sea crude oil production is projected to decline progressively after having reached peak production around 2000. Currently, in the EU, energy demand is covered by 41% oil, 22% gas, 16% coal, 15% nuclear energy and 6% renewables.⁶⁷ The EU currently imports 76% of its oil energy requirements; by 2020, this is projected to increase to 90%. The Green Paper acknowledges that “geographic diversification” will be difficult in view of the fact that the remaining oil reserves will increasingly be concentrated in the Middle East.⁶⁸ According to data presented by a EU document, in 1999 the EU imported 51% of its oil from OPEC countries, with 31% from the Middle East, 18% from Africa, and 2% from Venezuela. Among the Non-OPEC countries the EU was supplied with 21% from Norway, 18% from Russia⁶⁹ plus the CIS and 10% from Mexico and others.⁷⁰ Thus, expressed in countries, Norway is the No.1 oil supplier for the EU, Russia the No.2.

Gas Import Reliance

Natural gas has seen a rapid growth in consumption since the 1990s, increasingly supplanting oil for heating. In the mix of energy, the share of gas--currently 22%--will increase to 29% by 2030. The EU imports 40% of its gas consumption; of that amount, Russia and the CIS account for 41% of the EU’s gas imports, Algeria 29% and Norway 25%.⁷¹ Thus, for the foreseeable future, Russia and Algeria will remain the main external suppliers. The Green paper concludes: “In the long run, the supply of gas in Europe risks creating a new situation of dependence.”⁷²

In view of the geography of its suppliers, for the EU and the increasing dimension of its import dependency, the 1999 *Annual Energy Review*’s conclusion warns that more than three quarters of world oil and gas reserves are located in potentially unstable areas from political and/or economic point of

⁶⁷ EU Commission, Green paper, 2000, p. 51.

⁶⁸ Ibid, p. 21.

⁶⁹ It is difficult to get net data for the oil that is supplied only by Russia. All data available provide “Russia plus CIS” data. Roland Goetz estimates that it is approximately 15%. Personal communication.

⁷⁰ European Commission, *The internal energy market: Improving the security of energy supplies*. September 2002, p. 2.

⁷¹ Ibid.

⁷² EU Commission, Green Paper, 2000, p. 46.

views. Furthermore these areas will remain the dominant source of European Union supplies in the future.⁷³

The 2000 Green paper also discusses the potential instabilities in connection with the EU’s reliance on a few energy suppliers:

Adopting a policy of geopolitical diversification has not been able to free the Union from effective dependence on the Middle East (for oil) and Russia (for natural gas). Indeed, a number of Member States, and in particular the applicant countries, are entirely dependent on a single gas pipeline that links them to a single supplier country.⁷⁴

Diversification and Technology

Diversification of suppliers, in particular in the gas sector, is therefore one important strategy recommended by the Commission. Towards this end, the EU - in its 1995 Green paper - declared its intention to develop and apply new technologies for enhanced exploitation of fossil fuels as well as make better use of new and renewable energy sources.⁷⁵ But five years later, in 2000, renewables still accounted for only 6% of Europe’s supply, including 2% hydroelectricity.⁷⁶ Moreover, the progress made in renewables has been offset by a further increase in consumption. Accordingly, the Commission set a new goal: it projected the target of doubling the share of renewables in global energy consumption from 6% in 1997 to 12% by 2010, a level of 7% for biofuels by 2010, and a target of 20% for all fuel substitutes. The investment required to meet these goals has been estimated to be about 165 billion Euros between 1997 and 2010.⁷⁷

The 2000 EU Green paper states that “transport represents the great unknown for the future of energy” and that, with its “almost complete dependence on oil”, it is “an Achilles’ heel for Europe’s economy”.⁷⁸ In the future, the transport sector is expected to grow by 2% per annum, with goods transport expected to increase by 38% and passenger transport by 19%. The EU concedes that the current absence of any real oil substitute (bio-fuels, natural gas) in the transport sector would “make any prolonged oil crisis critical”.⁷⁹ But the transport sector is not the only problem: while the EU paper correctly

⁷³ 1999 EU Annual Energy Review, p. 75.

⁷⁴ EU Commission, Green Paper, 2000, p. 22.

⁷⁵ EU Commission, Green Paper, 1995, p. 39.

⁷⁶ EU Commission, Green Paper, 2000, p. 46.

⁷⁷ Ibid, p. 48.

⁷⁸ Ibid, p. 6 Annex.

⁷⁹ Ibid, p. 43.

acknowledges that energy savings in transport is a *sine qua non* for any substantial reduction in energy consumption, it completely omits the problem of the petrochemical and agricultural sectors, which are both heavily dependent on oil and where no short-term solutions – except controversial ones like genetic engineering - are in sight.

The 2000 EU Green paper has been criticized widely for its critical shortcomings.⁸⁰ One criticism refers to the lack of the paper's engagement in the current controversial debate on resource depletion.⁸¹ Furthermore, instead of acknowledging the structural dimension of this problem in terms of the necessity to prepare for the inevitable long-term shift to a system depended on renewable energy, the Commission reduces the problem to one of "import dependency".⁸² As stated explicitly in the Green paper, the EU is not seeking to increase energy self-sufficiency or to decrease its dependence, but instead deliberately limits itself to a strategy of reducing "the risks linked to such dependency".⁸³ This approach is labeled here as the "EU strategy of risk reduction."

Independent of the strategy, the analysts who drafted the EU Green paper at least cannot be accused of underestimating the seriousness of the situation when they use the following analogy to describe the social risks of an energy crisis:

The instability of energy supplies, whether linked to erratic fluctuations in prices, relations with producer countries or a chance event, may cause serious social disruption. Today petrol is vital for the functioning of the economy, like bread. Any disruption of supply is likely to lead to social demands, if not social conflict. The situation is similar to that created by a bread shortage 200 years ago.⁸⁴

The Energy Charter Treaty and the most recent Energy Partnership with Russia have to be seen as a reflection and direct policy outcome of this strategy aimed at reducing the risk for an EU involved in high import dependency on Russia. But both policy initiatives, the Charter Treaty and the Energy

⁸⁰ See "Commentary and Contributions" on the webpage of DG Energy and Transport.

⁸¹ The Green paper talks only once about the "gradual exhaustion of hydrocarbon reserves". EU Commission, Green paper, 2000, p. 50.

⁸² See the criticism of Jörg Schindler and Werner Zittel under "Commentary and Contributions", on the webpage of the DG Energy and Transport, p. 5.

⁸³ EU Commission, Green paper, 2000, p. 2.

⁸⁴ *Ibid.*, p. 76.

Partnership, fall short of guaranteeing energy delivery from the *EU's most important gas and second-most important oil supplier*.

4.2. The Risky Strategy of "Risk Reduction": Putting all Eggs in the Russian Basket

The Energy Charter Treaty (ECT) belongs in the category of EU strategies of risk reduction; its aim is to secure energy supply through contractual and legal instruments. The Charter was set in motion by the Dutch government in 1990 to stimulate economic growth in Eastern Europe and the former Soviet Union. The Charter was signed as a political declaration in 1991 and developed into the Energy Charter Treaty, signed in 1994. The signatories to the treaty, now totaling 51, include all members of the European Union, several Eastern European countries, Russia and the CIS states, plus Australia and Japan. The Treaty entered into force in 1998 following the ratification of 30 signatories (ratification for other countries is still pending). The purpose of the treaty is to establish legal rights with respect to investment, trade, and the transit of energy. But the most important issue is security of transit, with all signatories obliged to allow the transit of energy from third parties including in the event of a conflict with one of the parties. This issue was raised in view of the fact that Russian gas, for example, is transported via Ukraine and other republics that have potential or actual conflict with Russia.

But so far Russia has not ratified the ETC, nor would it appear that the Russian parliament intends to ratify the treaty in the foreseeable future.⁸⁵ Thus the implementation of the ETC has been suspended indefinitely. The explanation for the Soviet reluctance to commit to this treaty is due to the transit protocols, which would require the signatories to allow third countries to use their pipelines for transit of their energy goods. However, Russia is not willing to allow third countries such as Turkmenistan and Uzbekistan to use Russian territory for transit, as it wishes to protect the monopoly position of the Russian gas company, Gazprom, in the European gas market. It is widely held amongst energy experts that "maintaining a stronghold over energy transit possibilities for former Soviet states has been a foreign policy instrument the Russian government has been reticent to relinquish."⁸⁶

In order to partially compensate for the lack of Russian participation in the ECT, the EU succeeded in achieving an "energy partnership" with Russia.

⁸⁵ According to Christian Cleutnix, EU Commission, who is responsible for the coordination of the EU-Russia energy dialog, in a statement he made at the conference of the Aspen Institute on "Emerging challenges in the field of energy policy for Europe, the US and Russia." Florence, Italy, July 9-10, 2002. For evidence of the Russian intention to deny a ratification of the ETC, see Luciani, 2002, p. 17.

⁸⁶ Balmaceda, *forthcoming*.

This initiative has been launched as one policy outcome of the EU Green Paper stipulating that the EU's share of Russia's current gas and oil supply is planned to double in the next 20 years.⁸⁷ But experts warn that Russia will not be capable of reliably delivering energy in these quantities in view of its limited reserves, its high domestic demand and the moderate production capacity of its energy companies.

Limited Reserves

While Russia is undisputedly the third largest oil producer and the second largest oil exporter, the quantity of its reserves is seen very differently. In its 2000 "Russian Energy Strategy", the Russian government claimed to possess 12 to 13% of world oil reserves (including possible reserves), while Western estimates assume proven reserves in Russia of less than 50 billion barrels or 4.6% of world reserves.⁸⁸ But recent increases in oil output are not necessarily a reflection of vast reserves; they can be understood as no more than a short-term improvement generated by the reactivation of inactive wells, drilling improvements, and the exploitation of some new fields. Experts point to the aging oil fields in Siberia, which show no evidence of any potential growth in production. Neither are there expectations of new findings in Russia, apart from the Sakhalin Island, the Northern Seas and some Russian fields in the Caspian.⁸⁹ Even according to the Russian Energy Strategy, oil production increase will be no more than about 1% per annum. Friedmann Müller concludes:

If all these factors are compared with the access to production capacities of Middle East countries in the range of more than 4 million barrels per day, the Russian ability to operate as a swing supplier and alternative to Middle East oil is non-existent and will not develop in the future.⁹⁰

As a result, even the big oil companies like LUKoil, YUKOS and TNK are investing in the gas sector. Hill and Fee note that "Russia is to gas what Saudi-Arabia is to oil."⁹¹ It seems that Russia's gas reserves far exceed those of any other country, holding 32% of proven total world reserves and outranking Iran, Qatar, Saudi-Arabia and Untied Arab Emirates as well as the US and Algeria. Accounting for 41% of EU gas imports, Russia and the CIS is the EU's biggest gas supplier.⁹² Since 1997, Russia has also been the main supplier for Turkey,

⁸⁷ The Energy Dialogue was launched at the EU-Russian Summit in October 2000 within the framework of the Partnership and Cooperation Agreement (PCA) with Russia, which was signed in June 1994 and came into force on December 1, 1997.

⁸⁸ According to Müller, p. 5.

⁸⁹ See Hill and Fee, p.8

⁹⁰ Müller, p. 7.

⁹¹ Hill and Fee, p. 3.

⁹² Figures from 1999. European Commission, *The Internal Energy Market. Improving the Security of Energy Supplies*. September 2002.

accounting for about 70% of its gas imports. North East Asia is also seen as a prospective market for Russian gas. In particular China, Japan, and South Korea are interested in importing gas from Russia. Gazprom, Russia's main gas company, concluded deals with three of China's largest energy companies and proposed several options to construct overland pipeline routes for transporting Russian gas to China, and possibly to South Korea and Japan.

However, there is still a question concerning whether the reserves will enable these ambitious plans to be met. Gazprom's gas production has decreased slightly over the last few years in response to the aging of the Western Siberian gas fields, which in 2000 accounted for 80% of Russian output. However, there is no escape from the fact that by 2010, or by the latest 2015, there will be a significant decrease in West Siberian production, exactly at the time when import dependency on Europe will grow.⁹³ While there are large offshore fields in the Barents Sea and the Yamal Half Island, it is more than questionable whether they will generate enough profit to justify the construction of a pipeline system. Technically, the development of these offshore fields in the Arctic North of Russia is going to be very difficult because of the cold temperatures, darkness in the Arctic Winter, a water depth of 280-360 meters, ice, and waves with a height of 25 meters.⁹⁴ For the exploitation of these reserves, the construction of a section of the Yamal pipeline is indispensable, but the profitability of such a pipeline is questionable. This means that, given the potential Russian delivery capacity –(according to the estimates of the Russian Energy Strategy), 90% of overall Russian exports would be spent by the agreed quantity of exports to Europe alone.⁹⁵ A further unknown is Russia's high domestic demand for gas and oil. The Russian Energy Strategy assumes that in this domain considerable savings are possible. But it is unclear upon what kind of prospects the Energy Strategy bases its optimistic outlook, in particular with regard to the expected economic growth in Russia that will lead to a further demand increase for energy.

A further strategy for Gazprom to meet its export and domestic delivery demands is to access additional gas reserves in Central Asia, i.e. Kazakhstan, Turkmenistan and Uzbekistan. But for such a strategy to be implemented, it would be necessary for Russia to place its pipeline system at the disposal of gas producers of the Caspian region. A step in this direction has been advanced by Putin's recent call for a Eurasian alliance of gas producers, including Russia, Turkmenistan, Kazakhstan and Uzbekistan. While this alliance would allow the Central Asian countries to use the Russian pipeline system, in contrast to the

⁹³ Götz, p. 25.

⁹⁴ Ibid, p. 27.

⁹⁵ Ibid, p. 32 and p. 36.

arrangements under the suspended ETC, it would at the same time secure Russian control of the quantity, direction, and conditions of the gas transport.

Optimism that Russian energy production may increase has been nurtured by Western investment in the Russian energy sector in an effort to increase production capacity. As early as 1995, the Russian government introduced production sharing agreements (PSAs) as a means to facilitate foreign companies' investment in its energy sector. But with the rise of oil prices, the Russian companies' and government's reluctance to share the Russian reserves with foreign investors grew. This growing resistance to Western investment is expressed in the indefinite Russian suspension of the ratification of the Energy Charter, the implementation of which would provide Western companies with the security necessary to guarantee large-scale investments. Nor is there any progress in the completion of the legal framework for production sharing agreements.⁹⁶ As Hill and Fee put it: "Russia's oil industry executives see themselves taking over Western business in the next 10-15 years – not letting Western firms break further into Russian oil."⁹⁷ Luciani confirms this observation in stating that Russia – like Saudi Arabia – discovered that the oil sector is an essential component of national sovereignty and should be reserved for national oil companies, with the exception of the more difficult and less promising field.⁹⁸

Energy Companies as Foreign Policy Tools

While it seems doubtful that Russian energy companies will be capable of meeting their delivery commitments to Europe in the long term, there is a question concerning the extent to which these companies can be exploited for the pursuit of Russian foreign policy. On the one hand it has been argued that the oil companies are to a large extent privatized and have become transformed into competitive international corporations – and therefore companies like YUKOS⁹⁹ and LUKoil are expected to resist any attempt by the Russian government to instrumentalize them in any way. Moreover, in view of the nature of the Russian economic and political system during the transition period, the Russian state would be "too enmeshed in domestic rent-allocation to be able to think through a long-term policy" for exploiting energy for foreign

⁹⁶ Russian oil companies are opposed to a PSA regime because they claim it gives unfair benefit to European companies. See *EU Commission*, Staff Working Paper. p. 5

⁹⁷ Hill and Fee, p. 23.

⁹⁸ Luciani, p. 14.

⁹⁹ Yukos, for example, has delivery contracts with a Hungarian company to which it would feel committed. Personal communication with Ray Leonard, Vice President, Yukos Oil Company.

policy goals.¹⁰⁰ On the other hand Hill and Fee argue that energy and energy companies are "important tools for the State in promoting Russian foreign policy". They give evidence for a "creeping re-nationalization of the sector"¹⁰¹ initiated by President Putin at the beginning of his presidency. In the first place, the structure of the state dominated energy sector was not affected by the break up of the Russian oil industry in 1993. The government maintains majority control in the cases of the oil companies Rosneft (100%) and Slavneft (50%), and some control in Eastern Oil Co. and LUKoil (37% and 14% respectively). But the quantity of the government's share does not fully reflect the companies' relation with the state, and companies with high government shares still strive for independence, while other companies with a low share, such as Zarubezneft, are closely following the government's directives. Although the two (largely) private oil companies - YUKOS and LUKoil - pursue market oriented strategies in an attempt to become competitive in the international market, they are still strongly influenced by the state. Both Presidents of LUKoil and YUKOS are former state officials and became involved in the energy industry only with government approval. Vagit Alekperov, the President of LUKoil, explicitly advertises the constructive role energy companies can play in Russian foreign policy.¹⁰²

As for Gazprom, the close relationship with the state is even more obvious, although the government only holds 38% of the shares. After Putin lost partial control of Gazprom at the beginning of his presidency, the appointment of a young Putin protégé from St. Petersburg, Alexei Miller, as Gazprom's chairman in May 2001 is seen as evidence that Putin had won out in his power struggle with Gazprom managers, whose aim was to privatize the gas company. European gas companies - ENI as well as Wintershall and Ruhrgas – started to invest in this large gas company which holds 25% of world gas reserves and controls 90% of Russian gas production. The participation of European energy companies in Gazprom might serve as a further guarantee that Russian gas deliveries to Europe will flow without interruptions. But these first initiatives of Western investment in the Russian gas industry might already be in retreat. The Western companies lack guarantees for their investment and production sharing agreements. Wintershall withdrew from a major Gazprom-Rosneft joint venture in early 2002. It is also questionable whether companies like Ruhrgas, which holds only a 5% share of Gazprom and another 1.5% through a joint venture

¹⁰⁰ Balmaceda, 2002, p. 7. See also Sahn and Westphal who argue that Gazprom "enjoys a great deal of autonomy because it has immunized itself against state interventions during the struggle of restructuring the natural monopolies." See Sahn and Westphal, p. 283.

¹⁰¹ Hill and Fee, p. 4.

¹⁰² In a newspaper interview, he explained the effects of the expansion and investment of the Russian oil industry in the CIS states and Eastern Europe: "As an example I am certain that Bulgaria whose oil sector is almost entirely owned by Russian companies, will not conduct any anti-Russian foreign policy in the foreseeable future." Quoted in Hill and Fee, p. 20.

with a Gazprom subsidiary, would attain “veto” power in case of conflict with the Gazprom management. Thus, it would appear that with the re-nationalization of its energy sector, it is questionable whether the Russian energy companies would be willing or powerful enough to resist a call by the Russian government to support certain foreign policy goals. Moreover, the creation of the Eurasian gas alliance could be interpreted as an enlargement of Russian foreign policy options: while Putin’s intention might be primarily to bring stability into the gas transportation system, these gas producers could exploit the alliance for prize agreements or the achievement of common foreign policy goals vis-à-vis their customers, in short as a kind of gas OPEC.¹⁰³

In view of its high dependency on energy imports from Russia, security of supply is a critical issue in EU-Russian relations. Over the last 30 years, Russia has been the most reliable supplier of energy for the European Union – there has never been any interruption of supplies.¹⁰⁴ Long-term “take or pay” contracts help guarantee Russian gas delivery and ensure the necessary funding for large-scale investments in production and transportation infrastructure. But it must be tempting for a Russian government to use this new power for Russian interests – or at least to threaten to consider this. During a recent visit to Germany, President Putin transformed this remote theoretical possibility into a real and specific one when he did not shy away from playing energy supply against Russia’s integration into European institutions. He let the Europeans know unambiguously:

If Europe treats Russia as an alien type, then of course we could create obstacles on the path of expansion of these relations. However, if Europe treats Russia as an equal partner, for Russia the rules will not be applied according to which a EU country is not allowed to be supplied with more than 30% energy from a country, which is not member of this community.¹⁰⁵

¹⁰³ *Financial Times*, “Putin seeks Eurasian alliance of gas producers”, January 22, 2002.

¹⁰⁴ Synthesis Report, *EU-Russia Energy Dialogue*, presented by Vice-Prime Minister Victor Khristenko and European Commission Director-General François Lamoureux, Brussels/Moscow, September 2001, p. 2.

¹⁰⁵ Text of the Russian Berlin Embassy’s webpage, translated by a staff member of the German Foreign Ministry. Putin refers here to a recommendation of the OECD that has already been ignored by Germany since it gets supplies far beyond 30% from non-OECD Russia. The journalist Adam Tanner translated Putin’s statement, and while the first part is identical with the wording given by the embassy, the second part reads as follows: “If Russia is treated as an equal partner in long-term agreements, the country will guarantee long-term delivery of energy supplies.” Quoted in Adam Tanner, “Putin Warns Europe to Treat Russia as an Equal”, *yahoo Headlines*, April 9, 2002. At an energy conference in Florence, several interpretations were offered to dispel Putin’s statement as an attempt to blackmail the Europeans with their energy dependency: 1) his statement was directed at part of the Russian public which is critical of Russia’s close cooperation with the West and in particular the EU; 2) Putin has been ill-advised by some hawkish advisers; 3) the translation of the original Russian text is incorrect since such a statement would be incompatible with Putin’s benign character. The only room for this interpretation is given by the Russian word “my” (us) of the sentence referring to the obstacles: it could refer to “Russia” or “us together”. In the latter case, it would mean that both sides were then responsible for creating obstacles to EU-Russian relations as an automatic response to the unevenness of both partners. I owe the hint on

The implication is that if Russia is left unsatisfied with the degree of its integration into EU institutions, it will consider withholding energy supplies to Europe. Thus, it seems, the EU strategy of risk reduction by pursuing the Energy Charter Treaty turned out to be a deadlock and the Energy dialogue is no guarantee to prevent conflict over resources by the interruption of supplies from Russia – be it intentionally, by using the “oil” or “gas” weapon, or be it unintentionally, caused by a progressive depletion of Russian energy resources and the increasing number of consumers who are dependent on Russia.

5. INADEQUATE WESTERN CRISIS MANAGEMENT

In this section of the paper, we will discuss the efficiency and the implications of Western strategies of crisis management to respond to this energy vulnerability, namely the potential use of emergency measures in the context of the International Energy Agency, and a Western strategy of a geopolitics of energy.

5.1. Crisis Scenarios and Crisis Management: the IEA

Disturbances and supply crisis have always been part of the global petroleum system. But a system of crisis management was installed in the 1970s as a direct outcome of the most dramatic supply interruption, the 1973 oil crisis. In the following, it will be discussed to what extent an “oil crisis” similar to that of the 1970s can still affect today’s petroleum system, and how effective the crisis management system of the International Energy Agency (IEA) has been so far in dealing with supply interruptions.

Crisis Before the 1970s

Before World War II, it was mainly national and labour struggles in Latin America and the Middle East that caused disturbances to the Western oil companies. After World War II, two major events occurred in the 1950s: first, the nationalization of the British oil corporations through the Mossadeq regime, and the subsequent coup by British and US forces to overthrow Mossadeq and to install the pro-Western Shah (1951-54). The second was the oil supply crisis that occurred in the Suez crisis in 1957. Well into the 1960s, the US hegemony of the world petroleum system was based on the United States’ role as an oil producer. Therefore, in case of disruptions in oil supply – for example, in the Suez Canal crisis – the US still had the excess capacity to act as a swing

Putin’s statement to Matthew Evangelista, “Will Chechnya keep Russia out of Europe?”, Paper for the European Forum at the *RSC of the EUI, Florence*, May 2002.

producer that enabled it to increase output and export to its oil-consuming allies in Western Europe and Japan. But US production peaked during the late 60s and this decline in its production capacity became obvious during the first “oil crisis” in 1973, when the US proved unable to supply the market with additional excess oil.

Crisis of the 1970s

For the first time in the late 1960s and 1970s, oil-producing countries made use of the “oil weapon” as an instrument for foreign policy. The West’s first encounter with this new phenomenon occurred when an oil embargo was imposed by the OAPEC¹⁰⁶ on the United States and the Netherlands for their support of Israel during the 1973 Arab-Israeli war. There was a reduction of 5 million barrels per day (mb/d) in supplies from the Arab countries of OAPEC between September and November, which resulting in a loss amounting to 9% of the total production of 50.8 mb/d.¹⁰⁷ Prices of oil rose by 227%, from \$5.12 in October 1973 to \$ 11.65 by January 1974.¹⁰⁸ However, this first oil crisis was not provoked solely by the Arabs using the oil weapon, but rather by spare capacity that had been consumed.¹⁰⁹ Oil was under-priced, stimulating a very fast demand growth, which again eroded the spare capacity to the point where it was no longer guaranteed that the system was capable of keeping up with demand. For this reason, it was advantageous for the petroleum system to correct the oil price upward. What happened in 1973 was that “the importance of the underlying market tightness was subsumed under the headlines of the war with Israel and the unsheathing of the Arab ‘oil weapon’.”¹¹⁰ The spectacular 1973 crisis was followed by the crisis in 1979, and a third one in September 1980, when Iraq declared war on Iran. The deficit this time was 4 - 5% with a 261% increase in price from \$13 to \$34 per barrel.¹¹¹ While there is consensus among analysts and scholars that the first oil shock had severe economic and political effects, there is disagreement concerning the extent of these effects. It is doubtful that it was solely the rise in oil prices that “led to the worst recession in decades in the trilateral countries”, as the Trilateral Commission claims.¹¹² Capitalism was also experiencing a severe structural crisis at this time. But the strong relationship between oil price shocks and recession cannot be denied.

¹⁰⁶ Organization of Arab Petroleum Exporting Countries.

¹⁰⁷ Yergin, p. 746. Iraq and Iran could compensate this loss by only 15%.

¹⁰⁸ Vernon, p. 26.

¹⁰⁹ Horsnell, p. 5.

¹¹⁰ Ibid.

¹¹¹ Yergin, p. 84.

¹¹² Trilaterale Kommission, p. 36.

One response of the Western countries to these crises of the 1970s was *diversification strategies*. The industry stepped up their exploration outside the Middle East region, finding promising new provinces in Alaska, the North Sea, Mexico and elsewhere, many offshore. Also, nuclear energy was further developed, and coal achieved a massive comeback in the electricity sector. The oil companies released onto the market their reserves, which they had stored in expectation of a potential future crisis. Also, programs for saving energy displayed some success. In response to these developments, the Western economies recovered from the oil price shocks of the 1970s and oil prices even dropped significantly in the 1980s, down to a pre-crisis level of about US \$9 a barrel in January 1999.

But the crisis of the 1970s was not only about oil prices. There was a real supply crisis. During the 1973 crisis the petroleum industry in the Middle East was still predominantly¹¹³ based on vertically integrated supply chains. This means that the oil industry controlled upstream as well as downstream production and the power of supply was in the hands of the Western oil companies.¹¹⁴ Horsnell explains:

(A) barrel lost in exports would be neatly matched by a barrel’s shortfall at the buyer’s end. It was the world of what used to be called oil company supply managers. Barrels were moved around the world like pieces on a chessboard, and there was no other deus ex machina to mitigate or alter the impact of any shock.¹¹⁵

And it did not help that the system was still in the in the hands of Western oil managers. During the 1973 crisis, Prime Minister Heath attempted to ask BP and Royal/Dutch Shell for preferential treatment to deliver oil to Britain since the British government held a majority shareholding. BP and Shell declined.¹¹⁶

After the oil crisis, the Middle Eastern states denationalized the Western oil companies and in the mid 1970s ownership shifted to their own governments. But in the late 1970s and early 1980s, the oil world changed again with the slow development of the international oil spot market. Today oil is traded on these international spot markets, or in form of special contracts between oil companies and refineries in certain countries. With this system in place a state can always ultimately get the oil it wants, albeit at a much higher price:

(T)he problem during a crisis was simply the price one has to pay...Even if all one’s supplies were bought from countries that were not subject to disruption, once

¹¹³ There are differences in the literature as to what extent and when the system of vertical integration was lifted.

¹¹⁴ The “upstream sector” refers to the drilling and production of oil; the “downstream sector” includes processing, transporting and distributing.

¹¹⁵ Horsnell, p. 2.

¹¹⁶ Horsnell, footnote 12, and Yergin.

the short term scramble for barrels was over, one would be in no better a position than a country which had all its imports subject to disruption. Securing the supply lines was no longer the dominant issue it had had been in the early 1970s and before.¹¹⁷

Thus, in the short- and mid-term perspective we will be spared the specter of a reemergence of the 1970s' oil crises, at least as long as we still have swing producers who are capable of swiftly producing spare capacity to bring down prices – a role which has always been played by Saudi-Arabia and other OPEC countries. But, as some experts predict, after 2010 when the first effects of a supply crisis become tangible, it will no longer be obvious as to which producer can most easily compensate for the loss of barrels to act as a swing producer. Maybe soon this role can be taken over by Iraq.

Vulnerability of Trade and Pipeline System

There remains the danger of a supply crisis caused by a disruption in the trade and pipeline system. With 180 ships making the passage every day, the Suez Canal is still an important trade route for Europe. Unimpeded passage through the Canal is essential for European trade since it shortens the voyage from Europe to the Indian Ocean by 10-12 days. But more critical in terms of disruption is the Straits of Hormuz, with a movement of 18 mb/d, and without any alternative export route for most of the oil. Therefore, the closure of Hormuz would be "the absolute Armageddon scenario"¹¹⁸. With Al Qaeda searching for opportunities to hurt the West in its most vulnerable points, such a scenario no longer sounds unrealistic.

Europe's critical gas supply from Algeria could also be subject to disruption by attacks upon the onshore gas pipeline. This concern is bound to increase in view of the growing role of gas. Two gas pipelines to Europe are going through the potentially unstable Maghreb: one is the Transmed pipeline carrying Algerian gas through Tunisia to Italy. The second, in operation since 1996, is the Maghreb-Europe pipeline. This nearly 800-mile pipeline transports gas from Hassi R'Mel, the largest field in Algeria, through Morocco and below the strait of Gibraltar to Seville in Spain, with expansions planned to Portugal, France and Germany. In another scenario, Gulf and Mediterranean states with a strong naval capacity would disrupt Europe's trade and energy supply that is transported on ships. Therefore, the US 5th and 6th Fleets' explicit mission is--among others--the protection of the energy supply.¹¹⁹ But what about the

¹¹⁷ Horsnell, p. 2.

¹¹⁸ Ibid, p. 7.

¹¹⁹ Lemke, p. 13.

mechanism to deal with a supply crisis caused by a disruption in the trade or pipeline system?

IEA Emergency Response

In the aftermath of the first oil crisis, the International Energy Agency (IEA) was established in 1974 as part of the OECD, with the primary mission of providing a mechanism to mitigate the effects of a future oil embargo by Emergency Response Measures. Furthermore, the IEA was supposed to come up with long-term plans to decrease dependency on OPEC, such as strategies of diversification and conservation of supplies. The IEA also encouraged international oil companies to ignore anti-trust laws in case of an oil shortage crisis, since they were needed for cooperation with governments to distribute the oil among the member countries in a fair and equitable fashion.

But the chief objective for the foundation of the IEA was energy security and emergency response. To that end the IEA designed an integrated set of *emergency response measures*, which include stockdraw, demand restraint, fuel-switching, surge of oil production, and sharing of available supplies. This Emergency Program goes into effect in case of international disruptions with a 7% loss of supply, called the "7% trigger". In order to implement the stockdraw measure in case of crisis, IEA member countries have committed themselves to hold stocks equivalent to 90 days of net oil imports. The stockholding system includes two types of stocks: company stocks, which are held by the industry and government, and agency stocks, which are referred to as "public stocks". For EU members this obligation is reinforced by a EU commitment.¹²⁰

These measures notwithstanding, in the second oil crisis in 1979, the IEA failed. With a gross loss of 640 mb/d during the crisis, oil prices were driven even higher than in the first oil crisis. The IEA failed to stop the dramatic surge of oil prices. It was held responsible for not having curbed the catastrophic dimension of the crisis. In particular, IEA's reporting system was criticized for its insufficient work.¹²¹

This changed with the Gulf War supply crisis in 1990-91, when the IEA for the first time since its founding could refer to a successful management of a crisis. Information flew better than in other crises and the market did not react in panic but much more flexibly.¹²² Iraq's invasion of Kuwait led the UN to

¹²⁰ The difference between the EU and the IEA is the method for calculating the storage obligation and for determining the actual level of stocks: the EU bases its method on consumption while the IEA uses the total net import. Moreover, the EU allows a maximum of 25% deduction in case of inland production. IEA, 2001, p. 357.

¹²¹ Keohane, p. 224.

¹²² Yergin, p. 961.

impose an import embargo on Iraqi and Kuwaiti oil on August 6, 1990. This embargo led to a shortfall of 4.3 million barrels of oil per day. An IEA Contingency Plan was set up to provide for 2.5 million barrels of oil a day to be made available to the market within 15 days, with 2 million coming from strategic oil stocks.¹²³ During this time, additional supplies came mostly from Saudi Arabia and other OPEC producers. Therefore it was not necessary to evoke the Contingency Plan earlier than January 11, 1991. However, since industry oil stocks were high at that time and oil demand was decreasing, only about half of the strategic stock that had been offered by the United States and Denmark, Germany, and the Netherlands was taken up.¹²⁴ It was the US that made the largest contribution by releasing 33.75 million barrels from the Strategic Petroleum Reserve (SPR). Thus, it seemed that the Gulf War crisis was not much of a challenge for the IEA to demonstrate its effectiveness: enough spare capacity existed in the system to meet this shortfall in Kuwaiti and Iraqi oil, and the stocks were filled at that time.

With the new heightened awareness on security of EU energy supplies, the inadequacy of the IEA mechanism is in the focus of attention. The EU Green Paper expresses skepticism about the IEA emergency program, while blaming the EU members for a lack of commitment to release their reserves in case of crisis:

During the Gulf War, as again today, it has been left to the US Strategic Petroleum Reserve (SPR) to spearhead pro-active intervention in the oil markets.... (T)he experience of negotiations within the IEA demonstrates that effective coordination and co-operation are extremely difficult to achieve in practice.¹²⁵

The 2003 war against Iraq did not provide a chance for the IEA to prove its effectiveness.

The EU Commission is aware of the insufficiency of existing EU Community law on strategic reserves and seems determined to do something about it. The EU Green paper suggests establishing a strategic oil reserve in addition to the 90 days' existing reserves for finished products¹²⁶, and calls for better Community mechanisms (such as centralized decision-making mechanisms) for the release of oil to the market. Also, a new package of measures to help to improve the security of energy supplies that was set up by

¹²³ IEA history, 1995, p. 134.

¹²⁴ See IEA history, 1995, pp. 133-147 and IEA, 2001, pp. 231-234 and p. 364.

¹²⁵ EU Commission, Green paper, 2000, p. 29.

¹²⁶ Ibid, p. 86.

the Commission in September 2002 points out a weakness in the IEA system: member states' stock management is linked to a large number of external partners, such as Australia, Japan and Korea¹²⁷, who do not have the same priorities as the members with respect to the future EU integrated energy market. As a response, the Commission suggests to harmonize the national storage system and to coordinate the use of security stocks.

The EU's incapacity to make decisions in this respect was demonstrated boldly in September 2000, when an initiative of single member states failed to follow the US example to jointly release strategic oil reserves to cool down prices. The EU members were unable to agree on such a drastic initiative.¹²⁸

5.2. US Geopolitics of Energy: All roads Lead Back to the Middle East

Since the 70's oil crisis, energy supply security has been a salient constituent of US foreign policy to be pursued by geopolitics.¹²⁹ During the Cold War, the use of military means for guaranteeing the supply of energy was legitimized by the threat emanating from the Soviet Union, which was under constant suspicion of seeking ways to restrict the West's access to oil. Thus, the infamous "Carter doctrine" of 1980 that declared the Persian Gulf as a region of "vital interests" to the US was justified only by the anticipated advance of the Soviet Union which, after its invasion into Afghanistan, had encroached closer to the Gulf region. But the 1991 Gulf War was evidence that the threat of the Soviet Union denying the West access to its lifelines had been used as a pretext and that, in addition, after the end of the Cold War the US would not accept any geopolitical changes in the Western-dominated petroleum system. Still, by rallying the war alliance behind the US in the 1991 Gulf War, the argument of the necessity for a restoration of international law by liberating Kuwait played an important role. But it seems that with the distance of more than a decade, the decisive motivation for this war can now be spelt out more explicitly: it was for control of the region's oil. Had Iraq not been defeated and instead occupied the Kuwait oil fields, it would have controlled 20% of the region's oil or some 6

¹²⁷ European Commission, Directorate-General for Energy and Transport, *The internal energy market: improving the security of energy supplies*, Brussels, September 2002, p. 4 and 7.

¹²⁸ *International Herald Tribune*, Sept. 30-Oct. 1, 2000.

¹²⁹ *Geopolitics* in this context is defined as the power rivalry between different types of power authorities for ideological and economic dominance as well as for the control and domination of territory, including maritime zones and airspace. In short, it is a power rivalry projected onto geographical space.

mb/d of capacity, turning it into an “ascendant power in OPEC”.¹³⁰ Edward Morse puts it boldly:

The Gulf War of 1991 was the first war in modern history fought specifically over oil. It serves as a reminder that as long as hydrocarbon resources remain fundamental to economic growth – and as long as there are powerful governments that want to ensure access to hydrocarbon supplies – there will be a commitment to use force to prevent any single government from controlling the market.¹³¹

As Klare also demonstrates, US policy continues to consider access to cheap oil as a national security issue far beyond the end of the Cold War and is ready, if necessary, to use military force to secure it.¹³² This self-confidence in the justification of US power projection for achieving US foreign policy goals is displayed even by hard-core liberals such as Francis Fukuyama, who predicts that oil will be one of three axes along which the North and the South will collide militarily in the future.¹³³

The Democratic Clinton administration with its emphasis on economics was no exception to this geopolitical approach to energy – in fact, even more so. With an “economization of international security affairs”¹³⁴ and the blending of economics with national security¹³⁵ the Clinton administration did not leave any doubt that “the economic well-being of our society” constituted a national security interest and was supposed to be defended – if necessary, by military means.¹³⁶ And security of energy supply is regarded as an essential constituent of economic well-being. One expression of Clinton’s geopolitical approach to energy was, for example, to declare Venezuela and Columbia as zones of “vital American interests” because of their oil resources.¹³⁷

The Republican Bush administration started with a strong focus on the Persian Gulf as an area of strategic interests, as Condoleezza Rice spelt out at

¹³⁰ Horsnell, p. 3.

¹³¹ Morse, p. 16.

¹³² See Klare.

¹³³ To give only a few examples, Robert Art lists six national security interests. Number three is “maintaining secure oil supplies at stable prices, in large part by keeping Persian Gulf reserves divided among the oil-rich Gulf states.” 1998/99, (p. 80). Gholz, Press, and Sapolsky argue that US troops should come home with the notable exception of the Persian Gulf where the US “should maintain sufficient forces ...to prevent any country from monopolizing control over significant amounts of the region’s oil.” (p.25). See also Amy Myers Jaffe and Robert A. Manning, who argue that “the US military will for the foreseeable future still play a role in defending international oil supplies.” (p. 123).

¹³⁴ See Klare, p. 10.

¹³⁵ See Losman.

¹³⁶ Excerpts from the *National Security Strategy*, White House, December 1999, quoted in *ibid*, p. 2.

¹³⁷ William Pfaff, “In Columbia, Remember: Foreigners Cannot Win a Civil War”, *International Herald Tribune*, May 15, 2000.

the beginning of her term as National Security Adviser.¹³⁸ Accordingly, the Bush administration’s May 2001 *National Energy Policy* mentioned that the Gulf will “remain vital to U.S. interests”.¹³⁹ But September 11, 2001, provoked some short-term, though radical discontinuities with this strategy of focussing on the Middle East. With the prospect of having to leave their Saudi base and the fall-out in the long-term close and mutually beneficial relationship between the Kingdom and the US, the Bush administration found itself at great pains to downplay the significance of this loss of a strong ally in the Middle East. But while the loss of the Saudi base has been compensated by new deployments in other Gulf states, a reminder of Saudi power (as displayed by Crown Prince Abdullah’s assurance that Saudi-Arabia is *not* considering the use of the oil weapon as a means to withdraw US support from Israel) contributed to further efforts by the US administration to dissipate the impression that the US is dependent on Saudi or Middle Eastern oil. One effort to that end was to de-emphasize the significance of the Middle East as a supplier for the US and instead to emphasize the capacities and potential importance of the Caspian region and Russia for US energy supplies.

With the opening up of the Caspian’s vast on- and off-shore oil fields after the break-up of the Soviet Union, expectations were awakened about new chances for the West to mitigate its dependency on oil supplies from the Middle East. It was the USGS (US Geological Survey) that provided the first flawed estimate of the fields as yielding as much as 200 billion barrels. But a variety of new estimates corrected the USGS data and put the figure rather lower. Now, 10 years after the entry of foreign companies, the initial enthusiasm has evaporated. While there are some promising fields, like the Tengiz field, where Chevron is producing, and the discovery of new fields like the Kashagan field of an estimated 20-25 billion barrels, the overall picture of disappointment cannot be changed. BP and Statoil have even withdrawn from the Kashagan venture since drilling there is very expensive, with deep oil at 4500m containing as much as 16% sulfur.¹⁴⁰ Azerbaijan has also turned out to be a disappointment, with total findings of 2-5 billion barrels. Consequently, Exxon-Mobil has now also withdrawn from Azerbaijan, turning the Baku-Ceyan pipeline into an enterprise of questionable profit.¹⁴¹ With an estimated size of about 61 billion barrels, the Caspian resources¹⁴² would be roughly comparable to those of the North Sea, constituting about 6.1% of the global proven reserves.

¹³⁸ See interview with Condoleezza Rice, August 9, 2000 with *policy.com*.

¹³⁹ *National Energy Policy*, chapter 8, p. 4.

¹⁴⁰ BP instead invested in Sidanco, a big Russian oil company. *Economist*, April 20, 2002.

¹⁴¹ Construction of the Baku-Ceyan pipeline began in September 2002.

¹⁴² Data from Colin Campbell, based on 1 trillion barrels proven reserves. An ENI manager put the figure as low as 7.8 billion barrels, and the US Department of Energy estimated that the Caspian might hold up to 233 billion barrels with 50% probability, but only 17 billion with a 90% probability. Information provided by Campbell.

Accordingly, the verdict of a RAND Study remains that “the Caspian could improve global energy security *at the margins*”.¹⁴³

Probably in recognition of this less than encouraging data on the oil reserves of the Caspian region and compensating for the loss of Saudi-Arabia, Russia has been the card on which the US has been betting for its future energy supply. It remains to be seen to what extent the US interest in Russia and particularly in Russian-American energy development will fade when Iraq’s vast oil fields will be finally under US control. Before Iraq had been turned into a potentially non-OPEC country, Russia was desperately needed as the replacement for the loss of the moderating power in OPEC, i.e., Saudi Arabia -- this time not within but outside of OPEC, a role Russia has played with sterling diplomatic skills over the past winter. The close cooperation between both countries in their fight against international terrorism is conveniently playing into these plans. Analogously, US scholars and journalists supported the US administration’s strategy to de-emphasize the role of the Middle East by arguing that the US is actually not in need of Saudi oil. However, this argument is often made by reiterating the mythical 200 billion barrel estimate for the Caspian reservoir -- an estimate that has long since been refuted.¹⁴⁴ In an April 2002 Foreign Affairs article on “The Battle for Energy Dominance”, referring to the competition between Russia and Saudi Arabia in their role as energy suppliers to the West, Edward Morse and James Richard¹⁴⁵ argued that “the CIS has won this competition because of its substantial reserves in the Caspian of about 75 billion barrels while Saudi Arabia displayed its incapability to increase its production for the last 20 years”.¹⁴⁶ But this lame comparison cannot ignore what the authors concede at one point: that the Saudis’ share of supplies to the US so far has been higher than that of any competitor¹⁴⁷, and that in 2000 the US imported 22.6% of its oil from the Middle East.

¹⁴³ Sokolsky, 1999, p. 71, emphasis added.

¹⁴⁴ See for example Stanley A. Weiss, “Not Wedded to Saudi Oil”, *International Herald Tribune*, April 25, 2002. See as well David Ignatius, “Behold Russia, the Energy Giant and Big Winner”, *International Herald Tribune*, December 24-25, 2001. Jim Hoaglund, “The True Cost of Arab Oil is More than Americans Can Afford”, *International Herald Tribune*, November 26, 2001. The war in Afghanistan also plays a role here: it has made possible the construction of a gas pipeline across Afghanistan and Pakistan. As early as mid 1990s Unocal and the Argentine company Bidas competed for Afghan rights to construct this pipeline. See Richard Butler, “Russia and U.S. Can Both Win the New Oil Game.” *International Herald Tribune*, January 19-20, 2002. See also James Steinberg: “Now events in Afghanistan could alter the map and increase the urgency for pipelines carrying Caspian oil.... The shifts will involve, to the north, moves for greater U.S.-Russian cooperation on Caspian energy exports and to the south, if Afghanistan emerges from the war as a stable international partner, fresh prospects for a gas line leading across to Pakistan’s coast on the Arabian sea”. Quoted in Joseph Fitchett, “War Alters Caspian Equation”, *International Herald Tribune*, October 30, 2001.

¹⁴⁵ Morse and Richard, April 2002, p. 20.

¹⁴⁶ With the “new environment of cooperation” after 9/11 and Russian corporate interests in Caspian countries, Russia has ceased to encumber Azerbaijan and Kazakhstan in building up their export pipelines. *Ibid.*, p.26.

¹⁴⁷ The authors indicate that roughly 1.7 mb/d of the roughly 10 mb/d imported into the US is supplied by Saudi-Arabia.

All Roads End in the Middle East

But notwithstanding all these attempts by the US elite to downplay Saudi Arabia’s prominent role in the future energy market, the US administration is going to face the inescapable reality that the US would have to come back to the Middle Eastern countries, which are the world’s main suppliers of energy. There is no dispute among the experts about which region offers the largest quantities of oil reserves: the Middle East holds 65.3 % of the world’s proven oil reserves. Accordingly, the share of worldwide oil coming from the Middle East will increase again, rising from 26% in 1997 to 41% in 2020, thus returning to early 1970s levels.¹⁴⁸ Saudi Arabia has a special role since it holds one-quarter of the estimated 1 trillion barrels of commercially proven reserves.¹⁴⁹ In a case of crisis, it would be Saudi Arabia more than any other country that could easily and swiftly increase its oil production in a matter of days. This refers to what has been labeled as “the strategic value of Saudi Arabia to the US”, or the “swing producer role” of Saudi Arabia.

It remains to be seen to what extent regime change in Iraq has helped to mitigate the problem of dependency on Saudi-Arabian oil. Nobody denies seriously that the war against Iraq was about oil; in the war’s aftermath the rationale for the war, Saddam Hussein’s possession of weapons of mass destruction and links to Al Qaeda is collapsing. With the regime change in Baghdad, international and, most of all, US oil companies regain access to invest in Iraq’s vast oil fields which have been left almost untapped over the last decade due to the UN sanction policy. It is estimated that Iraq possesses 112 billion barrels of oil, the largest reserve in the world outside Saudi-Arabia and 11% of proven reserves, almost double that of the Caspian. For years international oil companies have been trying to gain access to the oil rich Gulf region, but so far with success only for downstream production and without any prospect for penetrating the attractive and profitable upstream production. In addition, the *US National Energy Strategy* of May 2001 stressed the need for US companies to invest in Middle East oil production and recommended “to support initiatives by Saudi Arabia, Kuwait, Algeria, Qatar, the UAE and other suppliers to open up areas of their energy sectors to foreign investment”.¹⁵⁰ The authors of the *Energy Strategy* are certainly aware of the insincerity of this recommendation since Saudi Arabia and the Kuwait parliament have made it unmistakably clear that they are not going to repeat the mistake of the past by

¹⁴⁸ IEA, *World Energy Outlook*, 2001, p. 38.

¹⁴⁹ *BP Statistical Review of World Energy* 2001, p. 4.

¹⁵⁰ Report of the National Energy Policy Development Group, *National Energy Policy*, Washington, May 2001, p. 8-5.

allowing the Western oil companies too much control of their precious treasures. However, the regime change in Baghdad mitigates this impasse in the international oil companies' strategy to return to the Middle East by providing access to a country with abundant cheap conventional on-shore oil that does not exist anywhere else in the world.¹⁵¹ Thus, the oil companies believe they are capable of keeping their promise of huge profits to their shareholders - which include members of the Bush administration as well.¹⁵² But it remains to be seen whether this scenario will unfold as planned and whether the Iraqi oil industry will be capable of living up to the expectation of acting as a future swing producer.¹⁵³

European Geopolitics of Energy

While the US elite used to regard world oil as a strategic commodity, thus treating energy as a foreign policy issue and consequently as a "national security interest", the European states usually preferred to pursue a policy of free-riding and left it to the US to maintain and, if necessary, to restore the geopolitical structure that guaranteed accessible and affordable oil to the West. It remains to be seen now whether the strong opposition of some key EU states against the US-led war in Iraq will signal a new and more radical rejection of a geopolitical strategy to guarantee access to energy. Before the war in Iraq there were the first, though disparate, signs that even in the EU Commission and EU member states there are some officials and experts who think of a common and European geopolitical approach as a solution to deal with the import dependency of the EU. The first high-profile European to break the taboo of requesting a European military contribution for dealing with energy supply shortages was nobody less than the EU Director of the Mediterranean and Middle East Department, Eberhard Rhein, when in a 1997 RAND study he suggested:

The risk of another military conflagration in the Gulf region is more difficult to assess and to cope with. It is evident that the EU will not be capable, at least for another ten to fifteen years, of any preventive military action in the Gulf or anywhere else in the world. When it comes to securing energy supply by military power, the EU will not have any choice but to act

¹⁵¹ The oil companies of two countries succeeded in gaining contracts under the Saddam regime: Elf and TotalFina got contracts for two huge fields in the mid 1990s, but because of the trade embargo could not sign the contracts. Saddam agreed to wait until the sanctions were lifted. The same conditions have applied for Russia's Lukoil which got a contract of another huge field in 1997. But in December 2002, Saddam annulled the contract with Russia. This is the background for the accusations that Russia's and France's motives to oppose the war were equally driven by interests in the Iraqi oil business. *International Herald Tribune*, March 7, 2003 and *Der Spiegel*, No. 3, 2003, January 2003.

¹⁵² See *Der Spiegel*, January 13, 2002, (3/2003).

¹⁵³ See *ASPO Newsletter* No. 24, December 2002.

in union with the United States, either by way of bilateral coordination, as in the Iraq war, or under NATO responsibility as in Bosnia.¹⁵⁴

Additionally, the need to find a rationale for the plans of a European Rapid Deployment Force has contributed to the development of a distinct European geopolitical approach to energy. The government-funded Clingendael Security Institute in the Netherlands identified "essential interests" for Europe, such as a mass exodus of refugees or "hostile groups violently interrupting the flow of raw materials and/or indispensable commodities from areas Europeans are heavily dependent on".¹⁵⁵ In the context of asserting that the Middle East and Gulf are "strategically and economically essential to Europe's future",¹⁵⁶ the authors furthermore support a French suggestion to establish a special rapid reaction force for "crisis management" in the Mediterranean. But they leave unmentioned that such a force, with a projected deployment area for the Mediterranean, has been in existence since 1995, though with the participation of only four Southern EU members.

EU Geopolitics: Operational European Maritime Forces

On the EU level, as early as 1995 and in context of the Barcelona process, a European Maritime Force with the Mediterranean as a deployment area took shape when Spain, France, Italy and Portugal set up a rapid operation land force and a maritime force, called EUROFOR and EUROMARFOR.¹⁵⁷ Their task is the implementation of the WEU Petersberg missions¹⁵⁸, including peacekeeping, peace-enforcing, and evacuation of European citizens. Not surprisingly, the Southern Mediterranean countries, which were not consulted or informed beforehand, had strong reservations against the establishment of this force as "nothing other than intervention on the southern shore of the Mediterranean".¹⁵⁹ Also, Western strategists drew attention to the imprecision with which potential missions are projected for the newly formed forces.¹⁶⁰ If peacekeeping is the predominant mission of these forces, then why not design a

¹⁵⁴ Eberhard Rhein, 1997, p. 56. In 2002, Rhein, now based at the European Policy Centre, advocates strongly a transition to renewable energies as a solution. See Rhein, 2002.

¹⁵⁵ von Staden et al., 2000, p. 28.

¹⁵⁶ *Ibid.*, p. 29.

¹⁵⁷ For more details, see *Informationen für die Truppe*, 1/99. EUROMARFOR encompasses an aircraft carrier, three destroyers, three amphibious landing ships, seven frigates, four mine hunters, two support ships, two submarines and two maritime patrol aircraft.

¹⁵⁸ In 1992 the WEU launched the so-called Petersberg Declaration, which clarified that military forces under WEU command will be employed on humanitarian and peacekeeping missions and as a means of crisis management in peace-enforcing missions. With this declaration, the WEU members announced their determination to use military forces beyond the purpose of collective defense and to decide for themselves when and under which circumstances they consider it appropriate to dispatch their soldiers to conflict areas.

¹⁵⁹ Faria and Vasconcelos, p. 11.

¹⁶⁰ See, for example, Spencer.

force which could intervene in the crisis-stricken sub-Saharan regions of Africa instead of in North Africa? In its maneuvers, EUROMARFOR predominantly seemed to practice the rescue of EU nationals. But it is also possible that these forces could be used for other kinds of missions, such as interventions in the context of a potential wave of sea-borne refugees or for the security of energy supply. A scenario in this context is a fundamentalist take-over in Algeria in which EUROMARFOR could be employed to restore the security of the pipeline system.

The plans for EUROMARFOR correspond with an idea circulating in the strategic community about a geographical division of labor within NATO for areas which are of more importance to either of both transatlantic partners: it suggests that Africa and the Balkans would fall under European responsibility and the US's role would be to maintain the status quo in the Persian Gulf.¹⁶¹ While critics warn that this plan for a division of labor could undermine NATO's effectiveness as an organization, this does not matter too much anymore in view of NATO's current lapse into insignificance.

6. CONCLUSION

The post-Cold War period witnessed the occurrence of two wars in which access to resources played a considerable role. The notion of a "resource war" is not new: the latest oil crises of the 1970s sharpened the North's awareness of its dependencies on the resources of the South and the necessity for "resource management" to avoid conflicts between the producer and consumer countries. But in the course of the 1980s, with the success of the West's subsequent diversification strategy, which provided cheap oil from reliable partners, concern for resource wars died down.

Furthermore, post-Cold War international relations theories are not well suited to explain the phenomenon of "resource conflicts" and to engage in analysis for their prevention. This applies to the mainstream theories of neo-liberal institutionalism and neo-realism, the former because it believes that by the positive effects of globalization conflict, as the dominant feature of the international system, will be eradicated, the latter because with its focus on the status quo rather than change neo-realism is more prone to provide subsequent justifications of "resource wars" than useful explanations of how to avoid them. Also the more marginal and radical theories are no exception to this observation, since they continue social science's tradition of not recognizing "nature" as a factor in determining social outcomes. Also, international

¹⁶¹ See, for example, Robert Hunter, 2002, p. 147. He suggests that the Europeans would have intervened in Rwanda, had they already had an intervention capability. See also Peter Rodman, June 1999, p. 72.

relation's subfield of "environmental conflict and security" focuses on environmental degradation and renewable resources as motives for future domestic conflict, while neglecting the conflict potential of non-renewable resources for triggering war between states. However, with the growing energy import dependency of several states and a future oil supply crisis emerging on the horizon, attention must re-shift again on the inter-state level, and re-focus on non-renewable resources as the cause of potential conflict.

However, the West cannot depend on its strategies to prevent and manage this type of conflict - risk reduction, crisis management and geopolitics of energy - since they are at most only effective in the short- and mid-term, and are inadequate in the long term. The "risk reduction" strategy of the EU, which puts all of its eggs into a single Russian basket, will not help to reduce the risk of potential supply crisis. With Russia's indefinite suspension of the Energy Charter Treaty's ratification process, the EU will not have an instrument to deal with an energy supply interruption involving one of its most important suppliers. The conflict management strategies of the IEA will also have only marginal impact in mitigating and de-escalating these crises. In the Gulf War it was the swing producers, not the IEA, who quickly took the heat out of these situations by producing spare capacity. The third strategy, a geopolitics of energy, has been pursued so far only by the US, and encompasses a comprehensive approach of projecting power into energy-rich regions, ranging from military deployments with the consent of the host country or the use of the military to control an energy-rich region. But such a geopolitical approach, which so far has been pursued in the predominantly Islamic Middle East, is counterproductive in the longer run, since it produces antagonism between oil-rich Islamic states and oil-import dependent Western states.

It is highly probable that any preliminary considerations to copy a US geopolitics of energy, either by developing a distinctive EU geopolitical approach, or by planning to participate in US geopolitical operations, have come to a full stop with the war against Iraq. After the shock of fully grasping the implications of a "US geopolitics of energy" the EU might now be more willing to turn to alternative innovative strategies for avoiding conflict over resources. One such strategy is to conserve energy by means of taxation and legislation, as well as by dedicating resources to the research and development of alternative energy. Even if solar technology creates new dependencies on sun-rich countries, this will not have the dimensions of a fossil-fuel dependency for the simple fact that the energy of the sun is not subject to a depletion process. Another strategy would be to search for new avenues within the framework of the UN by initiating a dialogue between producer and consumer countries in order to arrive at a more equitable distribution of energy. A

determined pursuit of these alternative approaches might still have a chance to delay or prevent the occurrence of the anticipated supply crisis. However, when the effects of global decline of oil production become visible after 2010, when an increasing number of countries have to import an increasing number of fossil fuels, it will be difficult to avoid conflicts over the distribution of this invaluable and indispensable resource. And the axis along which these conflicts will erupt will be that of consumers and producers of energy, with most producers of energy belonging to the South.

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