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# Energy security: A transatlantic challenge?



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**Abstract:**

The EU and the USA are facing similar threats to their energy supply. Both of them have published strategies to deal with that topic. While the US energy supply is still somewhat self-reliant, the Europeans have to import most of their needs from abroad. Especially the Eastern European member states are almost completely dependent on energy imports from Russia. The author compares the energy data of both regions and offers a closer look on future trends in energy policy. Although there is much commonness on a general level, common action will be rare. But still a transatlantic energy partnership may be the point of origin for a large-scale regime on sustainable energy security.

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## 1. Energy Security: Where do we stand?

Lately, energy related news has been filling newspapers and scientific magazines. Since Russia's repeated saber-rattling in January 2007 European and U.S. citizens have been alert. The EU member states have to import over 55%<sup>1</sup> of their energy needs while the USA only about 30%.<sup>2</sup> These two regions as different as they may be are facing a similar problem: First of all, an increasing demand for energy resources coincides with shrinking own deposits. In addition to that the growing controversies between the producing and the consuming states will be the second major hurdle for the Western energy supply. Europe and America as transatlantic partners have to deal with some serious challenges of which five can be identified as the main difficulties:

- Russia, Venezuela and other new powers:

Geographically, the enlarged EU has moved closer towards Russia. But due to the historical heritage and the increased import dependency – especially for the Baltic and Central European States – relations between the resource superpower and its Western trading partners did not develop alike. While for example Poland imports nearly all of its gas and oil from Russia, Warsaw is very suspicious about the German-Russian Nordstream pipeline.<sup>3</sup> An energy superpower in the east is obviously frightening for the new EU-members. Venezuela and its neighbors have placed the USA in a similar situation: As imports from Latin America increase, so do the dependency and the vulnerability.

- Political Instability in the Middle East:

The Middle East is today an even more fragile region than it was some years ago. Iran is on its way to become a nuclear power, and Iraq is currently undergoing a kind of ethnic war. Besides these main conflicts terrorism and piracy are endangering energy infrastructures from the Persian Gulf to the Mediterranean Sea in a hitherto unknown scale. As Europe and the USA will increasingly have to import oil and gas from this region, instability, terrorism, and regional conflicts pose a risk for energy security. Furthermore, as infrastructures have to serve ever longer distances the liability to the aforementioned threats cumulate with every kilometer.

- Growing demand and shrinking reserves:

“We are addicted to oil”, President Bush said a few months ago in one of his State of the Union addresses.<sup>4</sup> That is even more true for the Europeans. Whereas the USA has to import almost 60% of its yearly oil demand, the EU has already reached a quota of over 80%.<sup>5</sup> While consumption is growing worldwide no new major oil fields are being discovered and older ones are about to dry out during the next decades. At the same time the rising economies in Asia – like China and India – need incremental amounts of oil to fuel their vastly expanding industries. So while reserves are decreasing, in the near future more countries will need a lot more oil. Higher prices and struggle for the distribution of resources will be among the key driving forces for international politics.

- Global climate change:

Human influence on the ecosystem cannot be gainsaid any longer. The last report of the Intergovernmental Panel on Climate Change (IPCC)<sup>6</sup> once again gave a frightening forecast on what might happen if we do not reduce the emission of greenhouse gases: rising sea levels, weather extremes, desertification and other damage to the environment. These events should be seen as some of the main risks in

the years to come. Spreading drought causes damage to farmlands, fisheries and forests. A higher average sea level not only may be a direct threat for some exotic archipelagos but also increases the risk of spring tides and floods. Thus people – especially in the southern hemisphere – may become short of food, fresh water and land for farming and living. Besides all these aspects of humanity the climate change is nowadays seen as a serious aspect of security. As a side effect global warming possibly will bring tropical diseases such as malaria and yellow fever to previously uninfected regions in Europe and North America. If the IPCC-scenario becomes reality natural disasters, conflicts about water, food and land as well as uncontrollable migration may add pressure on Western security policy.

- Mature infrastructures and super-grids:

Last November a German energy supplier caused a Europe-wide blackout through a planned shutdown of only a small part of its grid. More than 10 million people – from Hamburg to Malaga had no electricity for hours.<sup>7</sup> But North America had some huge outages as well: In 2003 a fallen tree and a switched off computer initialized a mega-blackout which cut off large parts of the west coast and Canada from electricity.<sup>8</sup> Electricity is the primary source of energy in the industrialized world but the European and U.S. grids are old and were not built for today's needs. External influence, overstraining during peak times of demand, or simple accidents can cause parts of the grid and plants to go offline. So the remaining capacity has to deal with even higher loads, which quite likely might lead to giga-blackouts as it already happened more than once in the past.

## **2. Data on European and U.S. energy supply**

Talking about energy security requires a minimum of understanding of the basic data presented in the following paragraphs. Both regions are not self-sufficient when it comes to energy, as already mentioned before. But while the EU nowadays needs to rely on foreign sources of energy for about two thirds of its demand, the United States is in a better condition with an import ratio of about one third. Nonetheless, the USA imports approximately 13 million barrels per day – which represents more than 60% of the total demand – mostly from Latin America, the Middle East and Canada. U.S. oil consumption totals up to 7.5 billion barrels each year, making the country by far the biggest single consumer. Within the EU only Denmark, Italy and the United Kingdom (UK) have relevant oil-reserves – together only 5 billion barrels or 0.5 percent whereas North America accounts for a tenfold of the amount of overall proven reserves. Member states consumed 5.4 billion barrels in 2005, which means 18% of global demand, compared to 30% in North America. Concerning external resources Europe imports nearly as much oil as the United States but most of it is from Russia and Norway.<sup>9</sup>

As for natural gas, global demand still shows an upward trend. With a 2.3% increase in 2005, consumption in the EU-25 grew at a rate of 2.0%.<sup>10</sup> Gas demand in the USA went down by -1.5% after the consumption increased from 1990 onwards due to higher prices and the loss of production after the hurricanes Katrina and Rita.<sup>11</sup> Because of its high energy density and lower emissions – compared to oil and coal – natural gas will be the fuel of choice for the next decades, especially for generating electricity and heat. As a result of missing infrastructures and technical hurdles gas will play only a minor role in transportation. The main reason why gas – as well as oil – cannot be the fuel for our long-term energy future is its finiteness. Even though experts do not agree on the point in time of the end of fossil fuels, however, for both oil and gas the peak production is expected before 2050. The growing global energy demand

under Asian leadership<sup>12</sup> and finite resources will lead inescapably to supply shortages and will thus effect economic development as well as every-day life.

Coal, the third of fossil fuels, has the longest history and at the same time according to its known reserves the longest future ahead. Even though the Europeans have some 190.000 Megatons (Mt)<sup>13</sup> of own resources – notably in Poland (hard coal) and Germany (brown coal) – they imported most of the coal they burned; a trend, which is also boosted by high prices of domestic production, even in the new member states. In its Green Paper "Towards a European strategy for the security of energy supply"<sup>14</sup>, the Union predicted an import ratio for hard coal of 70 % and more from 2020 on. The situation in the USA is rather different; here the world's largest coal deposits are located. In the end, in 2004 America's coal production achieved a surplus of more than 43 Mt<sup>15</sup>, whereas gross domestic demand afterwards slightly increased. With a global growth rate of 5% coal was the fastest growing fuel in 2005. Especially China fired its fast expanding economy with coal and accounted for 80% of the increase.<sup>16</sup>

The actual debate on the finiteness of fossil fuels and global warming forced a new interest in alternative sources of energy, such as nuclear power and renewable energy. Temporarily atomic energy accounts for 8% respectively 14% of total energy production.<sup>17</sup> The apparent advantages of nuclear power plants are first of all their low CO<sub>2</sub>-emissions and secondly, the secure availability of uranium from Canada, Australia and Kazakhstan, being three of the main suppliers. Finally, compared to other sources of energy, atomic power is cheap. Electricity can be produced at prices under 45 Euro per megawatt hour, while petroleum based generation costs at least 70 Euro.<sup>18</sup> Contrary to the relative climate neutrality and the low costs, the risks of nuclear power still exceed the benefits. Additionally, uranium resources might be depleted during the next 150 years<sup>19</sup> so in the long run nuclear power is not a permanent solution for the energy challenge. The current discussion about this topic has led to a soaring geo-strategic and ecological dynamic. Proponents of nuclear power see it as a possibility to reduce import dependency on the Middle East and Russia. Especially the eight Eastern European EU-members emphasize the opportunity of getting rid of Russian dominance. Bulgaria, Latvia, Poland, and the Czech Republic are about to update existing plants or build even new ones. While Belgium, Germany and Spain enacted a phase-out policy, currently 152 reactors in 15 member states are in operation.<sup>20</sup> In sum, the nuclear future in Europe is blurry and will be the reason for some basic debates.

The last group of energy sources to be discussed here are the renewables, which today still play a minor role with shares of 6% in the USA and the EU energy mix. Due to a higher sensitivity about energy dependence and climate change, biomass, solar, wind, and hydro energy have lost some of their ideological spin. Throughout the three sectors of energy consumption – households, traffic and industry – the renewables have had the largest growth among the sources of generating electricity with hydro power accounting for one tenth of total EU-production.<sup>21</sup> But there is also a high potential for cooling and heating buildings – private as well as industrial – in form of solar or geothermic energy. Absurdly, the renewables are still underdeveloped as biofuels for cars and trucks. Lately the European Council proposed binding margins of a 20% share of renewables in total energy production and 10% biofuels of all traffic related fuel consumption until 2020.<sup>22</sup> Similar to the EU, hydro power is the largest form of renewable energy used in the USA producing 6% of domestic gross electricity demand.<sup>23</sup> In absolute numbers the U.S. hydro electricity production is valued at the amount of 60.6 million tons of oil equivalent compared to 70.8 million tons of oil equivalent in the EU.<sup>24</sup> Apart from electricity the Americans gained interest in using alternative fuels – "freedom fuel"<sup>25</sup> – for transportation. In the 2007 State of the Union Address, President George W. Bush announced the ambitious target of reaching a 20 percent share of biofuels until 2017.<sup>26</sup>

### 3. Energy security today

For a long time the energy supply was seen as a market like any other. Only the formation of the OPEC – the Organization of Oil Producing Countries – gave a first hint that energy is also about politics. Even after the world had undergone the second oil crisis, nothing much changed. As Joseph Nye already in 1981 put it: We „... listened too much to economists who told us that international energy policy would take care of itself. It didn't. So today – nearly a decade after the first warning signals – we still need a coherent policy for energy security.<sup>27</sup> This is still true for the United States, and even more so for Europe. But lately the topic seems to be given a new focus.<sup>28</sup> Means of security and ecological aspects of energy are prominent right now and will determine our future substantially. Today, a strong tension between economics, sustainability, and environmental issues on the one hand and geopolitics on the other hand is more obvious than ever before.

Most of the oil and gas resources are located in regions with a high level of instability. About 26 percent of the world's conventional gas reserves are on Russian territory and two thirds of the conventional oil reserves lie in the Middle East.<sup>29</sup> As their own production is declining due to dwindling domestic resources, the dependency of Western states on foreign exports is growing. In turn, the risk that oil and gas are used as political leverage today is higher than before. Already in 1957 Abdullah Tariki – then head of Saudi Arabia's Directorate of Oil and Mining Affairs – stated that oil was „the strongest of weapons that the Arabs wield.<sup>30</sup> Additionally, most of the producing countries show great efforts to re-nationalize their energy sectors, e.g. Russia and Venezuela. Hence oil and natural gas deals are subject to international politics as well as economics. In January 2006 and again in 2007, Moscow and its neighbors fought about oil and gas prices. Russia demonstrated its power by cutting off Ukraine and later Belarus from the supply. Only six states – Iran, Iraq, Kuwait, Russia, Saudi Arabia, and Venezuela – own close to two thirds of the proven oil reserves. About natural gas, global distribution is even denser, with about 60% of the reserves being located in Russia, Iran, and Qatar.<sup>31</sup>

After the Cold War ended the relation between what formerly shaped the Western bloc and the oil (and gas) producing countries in the Islamic world deteriorated. The two controversial wars in Iraq and Afghanistan alienated even loyal partners on the Arabian Peninsula. Whereas most of the countries in Latin America always have seen themselves as a counterweight to U.S. dominance now more and more Middle Eastern nations want to rid themselves of Western influence. Russia, the old Cold War foe, is on the way to become an (energy) superpower again and is not willing to suffer external supremacy in its neighborhood. With the Middle East and Central Asia or respectively Russia two of the three leading energy-producing regions are on a confrontation course with the USA and to a lower extent also with the EU. If these relations become worse, supply security will deteriorate accordingly.

Even though today's deposits will fuel the world for quite some time, none of the fossil fuels is endless. Additionally, due to low oil prices during the 1990s, investment in spare capacities were omitted. The High Representative for the EU Common Foreign and Security Policy (CFSP), Javier Solana, touched a sore spot when he said: "The days of easy energy are over..."<sup>32</sup> Geologists and oil/gas experts still differ when peak production will be reached, but some point in the next two decades becomes obvious.<sup>33</sup> Kenneth Deffeyes, a Princeton emeritus, calculated the point of peak oil for 2005. Due to the mean database on natural gas production<sup>34</sup> he could not name a precise date, but claimed a near end as well: "We're now being served leftovers."<sup>35</sup> Others are somewhat more optimistic and propose the peak oil around 2018 and the depletion mid-point for natural gas within a generation afterwards.<sup>36</sup> All these calculations are based on static use; if the energy demand rises, both peaks might be reached earlier. After the conventional deposits are depleted, non-conventional reserves, such

as Canadian oil tars or methane hydrate can elongate the age of fossil fuels for some time, but anyhow, the epoch of oil and gas will soon be over.

Besides the scarcity of hydrocarbons another aspect of supply security is the growing global energy demand. Especially the emerging markets in China and India can tighten rivalry on access to diminishing resources. Over the last 10 years, the economy of the People's Republic had an annual growth average of 9%, while energy demand increased about 70% over the same period and by 2030 China will import as much oil as the USA.<sup>37</sup> Overall the non-OECD-world will have a predicted increase of 3%, whereas the OECD-countries' demand will grow at a rate of 1%.<sup>38</sup> With a tripled demand in the Asian region and two additional big competitors on the market, energy prices will rise and shortages are more likely which could fuel intense conflicts about the access to raw materials. Furthermore, oil and natural gas are supposed to be two of the principal determinants of geopolitics. Since natural gas was discovered as a supplementary source of energy after the Second Oil Shock, the Europeans and the United States had had some severe problems with Russia, or respectively the Soviet Union. While Western Europe increased Russian gas imports during the 1980s, Washington complained about equipping the Kremlin with money and diplomatic leverage.<sup>39</sup> The international inability to deal with a resource-rich Iran might bring the energy topic on the agenda again. On the other hand, the fact that more and more countries are relying on the Middle East to supply energy may be the key factor that could determine the stability of that region. Naturally, the importers have an interest in stability and do not want to risk an interruption of their supply chain.<sup>40</sup>

Another effect of growing import rates is the risky liability to terrorism, piracy and energy infrastructure accidents. The greater the length of oil or gas pipelines, the more points for failure are offered. On August 19, 1996, with temperatures above 40° C a high voltage line in Oregon dilated and touched some trees. The resulting bypass caused a blackout, which stretched out from northern USA down to Mexico. A few million people were cut off from electricity.<sup>41</sup> Because of connected grids in both Europe and North America and there being only few huge generating facilities a local interruption can spread continentally: every intrusion in one part of the power system can lead to an overstressing somewhere else and the effect may be a total collapse of supply. In the case of oil and gas the main aspect is not interconnection but distance and geography. In Saudi Arabia a terrorist attack on the country's largest oil refinery on February 24, 2006 only failed by accident. The strike would have affected two thirds of Saudi Arabian daily oil production.<sup>42</sup> Furthermore, every day 17 million barrels of crude oil, which means one fifth of the global total, are passing the Iranian Street of Hormuz – heading mainly to Europe, the USA and Japan – and therefore an interruption at this neuralgic point is not hard to imagine.<sup>43</sup> As most of the energy relevant riches are to be found in the Middle East, which is not characterized by stability, there exists a permanent threat to the supply.

Finally, man-made climate change affects energy security in two dimensions. First of all, weather extremes can directly bring down production. Hurricane Katrina which hit the coast of Louisiana reduced U.S. domestic oil and gas extraction by 860,636 barrels and 3.8 billion Gm<sup>3</sup> respectively.<sup>44</sup> Since the IPCC predicted a cumulation of events such as tsunamis and hurricanes, global off-shore and coastal depletion will be cut back more frequently. Even more frightening are the possible indirect consequences: Global warming will hit the disadvantaged southern hemisphere the hardest: water and food shortages, land erosion as well as flooding. So in these already less developed countries destabilization, conflicts, terrorism and migration could escalate. Thus, exploration and transportation of resources urgently needed by the Western nations are coming under pressure even more than before. Not to forget that many of the states with the largest amount of raw materials belong to the poorest. What is sometimes called the resource curse pictures the imbalance between the

wealth earned by resource exports and social and economic underdevelopment. But instead of giving them support in a catch-up progress the industrialized world let them pay their bill for pollution and depletion.

#### **4. Energy Future**

Our energy future is looming dark on the horizon but rapid reaction can prevent the transatlantic partners from a durable energy crisis. Several arrangements could cease some of the risks while others will not disappear. Immediate action could be as following:

- Developing a long-term strategic plan on energy security as the nationalization of energy sectors in most of the producing countries needs a political answer.
- None of the net consuming countries will be self-reliant on the long run. Therefore closer cooperation between them is needed.
- Diversification of fuels, routes, and origin will foster energy security.
- Decentralization of energy production – especially electricity generation – could have been summed up under diversification as well. But due to their importance new forms of regional or communal power plants should be a topic on its own.
- Finally, a great technology leap forward has to be achieved. Saving energy, increased efficiency and new fuels or techniques of generating power can make a substantial contribution to supply security.

To start with the strategic plan either the EU or in a best-case scenario both of them – the EU and the USA – would have to formulate enduring objectives and think up a strategy to achieve them. Being a nation-state is an advantage for the USA while the EU member states in the first instance have to find an agreement on a common energy policy. National solos such as the German-Russian Nordstream gas pipeline from Wyborg to Greifswald may secure Germany's supply but it is also another step towards dependency. Moreover, those who do not profit from that bilateral arrangement – like Poland and the Czech Republic – are not amused to be excluded. Each resilient strategy in this field must be based on the golden triangle of energy supply: security – sustainability – affordable prices. As neither the USA nor the EU are producing enough energy resources – even the UK started importing gas in 2004<sup>45</sup> – thus some form of cooperation is inevitable. So because of the fact that all Europeans are facing a very similar import addiction they should consider common action. At this point no detailed steps should be formulated but a grand strategy has to be sketched out answering the crucial questions of a reliable und efficient energy supply.

Diversification is one of the high-ranking tasks that have to be included in any energy strategy. The meaning of this technical term is threefold: in the geographical dimension diversification calls for exporting from as many different countries and routes as possible. Multiple origins of resources lower the risks of dependency. For the USA, which imports over 80% of its natural gas demand, while the EU as a whole imports mainly from Russia, Norway and Algeria dependency seems not to be a problem. But a closer look on the Union reveals that the three Baltic States have to rely completely on Russian gas exports.<sup>46</sup> As Moscow obviously is willing to use oil and gas as a weapon if needed, Eastern EU members should try to open up new transport routes and push for the finality of the European internal gas market. The more different sources of resources are available the lower are the possibilities to use supply as political leverage. The third dimension of diversification asks for broadening the energy mix in terms of its composition. Malta completely relies on oil and Poland's primary energy needs are obtained almost to three fifths from coal.<sup>47</sup> So every interruption may result in economic deadlock as well as it harms every-day life. Especially alternative sources of



energy such as solar and wind power or homegrown biofuels can bring partial autarky and reduce dangerous dependency.

In the United States Micro-Breweries are very famous for their locally brewed beer that is adjusted to the gusto of a small circle of customers. This concept could be applied to power generation as in that realm right now only some mega plants produce electricity, which is even sold abroad. Distributed energy generation would lower interferences due to long distance transportation. Communities and even households could produce parts of their electricity and heating demand independently. If renewables are used the addiction to imported fuels would end and sensitivity to price volatilities – e.g. the oil price – would diminish. Waste and biomass could be used for combined heat and power production with higher grades of efficiency. More and smaller plants might even result in supply stability because shortages caused by a single powerhouse breakdown are simpler to substitute. A condition for such a scenario is the modernization of the grids, particular in the USA. Until 2030, the incredible amount of \$10 trillion have to be invested globally in the electricity sector, of which more than half the money must be spent on transmission and distribution. North America alone has to invest \$1 trillion in its electricity infrastructure to respond to maturity and growing demand. At least micro power generation – as photovoltaic and geothermal power – bears the potential to slow down the demand increase of households and industries by being part of the production circle. The prospects of private energy autarky might be quite surreal but a combination of commercial and supportive private power production is realizable.

These more political efforts would turn out rather useless if they are not flanked by technological measures. The superordinate concept can be called efficiency, the “ability to use less energy to produce the same amount of lightening, heating, transportation, and other energy services.”<sup>48</sup> Today the USA produces twice as much GDP per unit of energy than it did 50 years ago.<sup>49</sup> So first of all America and the Europeans should work on further decoupling economic growth and energy consumption, as well as giving support to the developing countries in doing so. Apart from the industrial sector much is to be done regarding households and traffic. In the USA the average domestic appliances account for one fifth of the energy costs.<sup>50</sup> Especially electric devices in standby-mode waste about 9% of total energy demand.<sup>51</sup> So by making these devices more economical as a result of technological efforts, improving insulation, using energy-saving bulbs, and such endeavors, lots of energy could be saved or respectively used more efficiently. In addition to reduced consumption the ability to produce energy should be improved. Some time ago photovoltaic cells transformed 10% to 15% into electricity, today about 32% are possible.<sup>52</sup> As two U.S. energy experts put it: “‘Energy supply’ is determined not by ‘what is out there’ but by how good we are at finding and extracting it.”<sup>53</sup> But research and development not only accounts for economic and ecological reasons, lower energy demand due to higher efficiency and economical technology also contributes to supply security. For example Liquefied-Natural-Gas, which still needs some technological advancement, can open new routes of transportation and thus further improve supply security.

## **5. Different strategies – common goal?**

Since energy security is not solely a domestic problem and cannot be solved through economics alone, a complementary combination of internal and external action is required. The EU and America “share common concerns on energy efficiency, security, market based energy policies and environment.”<sup>54</sup> Though at first glance their energy policies seem to be in line with each other, but a closer look at strategic papers reveals some pivotal differences. The “U.S. Department of Energy Strategic Plan” locates four key elements of energy security:

- Diversity,
- Environmental Impacts,
- Infrastructures, and
- Productivity.<sup>55</sup>

The main targets are fuel substitution, energy efficiency, improving infrastructures, widening nuclear power generation, as well as research and development in advanced energy technologies. Moreover the U.S. strategy calls for a strong involvement from the government, referring to means of regulation and stimulating investment. Even though global cooperation is mentioned the energy plan focuses on domestic measures, actually exploration in the Arctic Wildlife Refuge is on the agenda again.<sup>56</sup> Nevertheless, the 2001 Cheney-Report recommends international alliances as contribution to supply security through geographic diversity. Next to the Middle Eastern region, the report promotes in particular a “North American Energy Framework”<sup>57</sup>, bringing together the USA and its main suppliers Canada and Mexico. But also closer cooperation with South America, sub-Saharan Africa, the Caspian region, Russia and Asia are advised. U.S. relations with Russia and some of the Latin American states, e.g. Venezuela, have become worse thus global energy partnerships have to be reviewed. Irrespective of this deficit, President Bush’s “Advanced Energy Strategy” – launched in 2006 – shifted the energy spotlight back on to the technology and domestic policy track: tax incentives and investment programs to increase efficiency, innovation and domestic produced fuels.<sup>58</sup>

Since the 1995 “White Paper: An Energy Policy for the European Union”<sup>59</sup> the EU published dozens of documents related to energy. To remedy the problem of a lack of community competences nothing much has happened, because the Commission always had to use a bypass over traffic-, environmental-, technology- or internal market-regulations. Nonetheless, the EU has made substantial efforts for energy security and against climate change. Starting with the “Green Paper” in 2000, the EU members worked on a common strategy for a secure, affordable and sustained supply. The key characteristic for a European energy policy was the necessity to write a strategy which 15, later 25, and now 27 sovereign states could agree on. As mentioned above, the intra-EU nuclear dispute is a good example for this. A revised “Green Paper” (2006) formulates six key areas, where “a new European impetus is needed”<sup>60</sup> and general consensus could be reached:

- Competitiveness and the internal energy market,
- Diversification of the energy mix,
- Solidarity,
- Sustainable development,
- Innovation and technology, and
- External policy.

Most obvious in comparison with the U.S. version are the lack of a functioning internal energy market and the claim for solidarity as a crisis mechanism. Due to the higher import dependency, the Europeans seem to be more sensitive to the energy topics than their American counterparts. But they still failed to agree on an overall strategy, which goes consequently beyond simple rhetoric.<sup>61</sup> The most controversial subjects are the national energy mixes, the relations with Russia and suspected economics effects of lower greenhouse-gas emission and ‘green’ energy. In consequence of the aforementioned missing authority the Commission can merely set the basic guidelines which than have to be enacted by the national legislators. If one looks i.e. at the internal gas market the main hindrances of a European

energy policy become obvious: although the single market is approved by all member states, the Commission reported over 30 violations in 20 states.<sup>62</sup> This is the same problem with generating electricity from biomass, where member states could not fulfill their self-commitments.<sup>63</sup> So as long as abstract and non controversial targets are on the agenda the EU-27 hesitates solving the problems by defining concrete measures that should be embedded in a strategic framework.

Anyhow, below the long term strategic level the EU member states achieved some noteworthy results. The very recently decided binding goals for 20% CO<sub>2</sub>-reduction and the replacement thereof by renewables are only two examples for a successful new European energy policy.<sup>64</sup> But on the same meeting the Heads of State and Government could not agree on a mandatory goal for higher energy efficiency, the national allocation of CO<sub>2</sub>-reduction or the future of nuclear power. Apart from legal and technical measures the “Action Plan (2007 – 2009): Energy Policy for Europe”<sup>65</sup> focuses on a common external energy policy and highlights Russia, Central Asia, the USA, Africa and the emerging markets, namely Brazil, China and India.<sup>66</sup> On the analogy of the “North American Energy Framework” Europe recognizes the relevance of its neighborhood to create a stable trans-European energy network, including the member states as well as countries in the Mediterranean and Russia. Also the EU enlargement policy will be scrutinized in the light of energy security, where Turkey might be of geostrategic importance as a transit country. Therefore, the energy topic is included in the EU’s external relations to build integrated energy markets and transfer European standards into its periphery.<sup>67</sup> A common or at least coordinated approach towards Russia is the lynchpin of these efforts. Thus, the overdue EU energy strategy should not trail off into too many facts but rather outline shared principles and accentuate the external dimension of supply security by dealing first of all with the Eastern neighborhood.

## **6. Transatlantic Energy Partnership**

In Europe more attention has been paid to ecological aspects of energy over the past decades than in the USA, even though something like a gradual eco-shift can be observed today.<sup>68</sup> The recent White House initiative “Twenty in Ten” to change large fleets to alternative fuel vehicles is only one of the examples for this development.<sup>69</sup> But economy and security are still the prime movers. A shared policy understanding would be essential for a transatlantic energy partnership. Converse to the overlapping of superordinate targets, day-to-day energy policy of the EU and the USA differs to a remarkable degree. Washington did not sign the 2005 follow-up of the European Energy Charta, in which it has an observer status since the adoption of the Kyoto-Protocol in 1991, while the EU as well as its members are fully participating in both agreements.<sup>70</sup> So the U.S. ambitions to cooperate in the field of energy politics, which goes beyond bilateral supply contracts, are questionable.

Shared – not common – interest in regional energy-hotspots may result in conflict in times of oil and gas shortfalls. As Michael T. Klare wrote: “... the central thesis [is] that resource wars will become, in the years ahead, the most distinctive feature of the global security environment ... what we are seeing is the emergence of a new geography of conflict – a global landscape in which competition over vital resources is becoming the governing principle ...”<sup>71</sup> So even if the transatlantic partners intensify their cooperation the dawning end of fossil fuels will be a burden. When domestic production of hydrocarbons is over, Europe, America, China, India, and other consuming countries have to find a mode to distribute the remaining resources that satisfies all of them. But the future, oil and gas reserves will not be large enough to satisfy the growing demand though securing national demand is supposed to dominate international relations.

A transatlantic energy partnership could strengthen both the USA and the EU. First of all, joint research programs on energy technologies – e.g. de-carbonizing – are very promising to cause synergetic effects. As Europe and the USA, together with Japan, are the leading regions for technology improvement energy research should be bundled, initiating a race to the top. One possible forum is offered by the International Energy Agency (IEA), an OECD subdivision, which brings together the USA and 17 of 27 EU members and other countries of the industrialized world. The IEA-research program “Science for Today’s Energy Challenges”<sup>72</sup> is an example for a multilateral scientific collaboration. The second field for closer cooperation is a more coherent energy policy, which is already on the agenda: “The EU and the US are the world’s largest energy markets. Our trade and investment relationship is the largest in the world. We share common concerns on energy efficiency, security, market based energy policies and the environment. As key consumers, we are in the front row for action.”<sup>73</sup> An EU-U.S. partnership in sustainable supply security could be the first step of a global energy turn; together they have a critical mass for substantial changes. Joint action in international organizations – such as OECD, UN or WTO – could mobilize more states to align. As climate change and energy security cannot be solved on a national or regional basis alone, a transatlantic cooperation could at least be a starting point for a wider, global energy regime. A third and last option is a common crisis management. Again the IEA in form of its “oil security system” can clarify what is meant: In the aftermath of the first Oil Crisis the OECD-countries founded the IEA and installed oil stocks and response mechanisms to deal with supply interruptions. As e.g. hurricane Katrina derogated oil production in the Gulf of Mexico during September 2005 IEA-countries decided to use some of their stocks to stabilize the market.<sup>74</sup> Similar collective security systems could be installed for others fuels, i.e. natural gas, and should – under EU/US leadership – be expanded onto all aspects of energy security.

## **7. Conclusion**

A transatlantic energy partnership will not solve all problems related to energy. This project should not aim for a common energy policy but for mutual accommodation and harmonization, including a joint strategy towards important producers such as Russia or Iran. Furthermore an integrated approach is needed, where supply security is combined with the economy, ecological aspects, technology, and development. “Bilateral engagement is important. However in many instances, working through multilateral institutions will be the way to achieve more significant results.”<sup>75</sup> Globalizing energy markets and an increased trade with raw materials provide evidence for this. Thus, transparency, stability and liberalization should be promoted globally, leading to an international energy regime in the long run.

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