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Renewable Energy Strategies Leading to Closer Europe-Japan Cooperation after 3/11

WILHELM VOSSE*

The EU and Japan have intensified its cooperation and a broad range of fields since the early 1990s. Political, industrial and academic cooperation in the area of science and technology including in the improvement of new technologies to production of energy had become one core element since the early 1990s, and even more so with the 2001 EU-Japan Action Plan.

The 3/11 disaster and the post-Fukushima energy future promise another area of cooperation, namely in dealing with the global energy crisis. Despite common interests between Japan and many European countries and the EU in regard to energy policy, research and development in nuclear safety and renewable energy resources, post-3/11 cooperation between Japan and European countries remained far from optimal. In the immediate post-disaster period, it was the initiatives of businesses and R&D interests rather than national government initiatives that provided first evidence that cooperation between Japan and the EU and individual EU member states might become more prominent in the face of a global energy crisis. This article analyzes the changes in bilateral and multilateral relations of the EU and some of its member states with Japan, and asks whether 3/11 can act as a trigger for the development of a joint Japanese-European energy strategy.

Keywords: EU, tsunami, rescue, assistance, science and research, EU-Japan cooperation, energy, renewables

* Professor, Department of Politics and International Studies, International Christian University, Tokyo; E-mail: vosse@icu.ac.jp
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I. INTRODUCTION

For most of the last 40 years, the central area of EU-Japan relations was in trade. Since the early 1990s, EU-Japan relations gradually intensified, beginning with the “Joint Declaration on Relations between The European Community and its Member States and Japan” (July 1991), which included provisions on joint “efforts in meeting transnational challenges, such as the issue of environment, the conservation of resources and energy” and towards a dialogue and cooperation on advanced technology and energy (Ministry of Foreign Affairs of Japan, and European Commission. 1991). Since 1991, the both sides meet annually in EU-Japan summits, to exchange views and initiate programs for closer cooperation. The next major step on the way for closer cooperation was the 2001 EU-Japan Action Plan, which included a long and ambitious list of projects and areas of cooperation, including a whole section on “Energy and Transport”. Relevant in the context of this article was the goal to work on a “framework for stable long-term co-operation in the peaceful use of nuclear energy”, research and development, and to “share information on efforts to increase diversification of energy supply, to develop sources of energy which have less environmental impact than current ones” (Ministry of Foreign Affairs of Japan, and European Commission. 2001).

In the last decade, the EU and Japan also began to cooperate in many non-traditional security areas, such as the peacekeeping and post-conflict reconstruction missions in Southern Iraq and Afghanistan, the anti-piracy mission off the coast of Somalia, the fight against global warming, or the state-building and democratization missions in Azerbaijan. The 3/11 triple disasters triggered not only a wave of support from the European Union and its member states for the worst hit parts of Japan, but also, in some European countries, a public and political debate about the future of nuclear power. The nuclear disaster of Chernobyl in 1986 was still very vivid in the minds of many Europeans. However, this time it happened in Japan, a country known for its world-class technical and scientific innovations, and the effects on the discourse on nuclear power and subsequently alternative energy sources were graver and the political decisions in some European countries much more fundamental than in 1986.

Japan and the EU and its member states share similar values – a democratic political system, a high level of technical knowledge and innovative power – but also a strong dependence on foreign energy resources. Therefore, the aftermath of 3/11 and especially the energy crisis that it triggered in Japan and in some European countries were the ideal starting point to share technical and policy-relevant knowledge and experience concerning energy policy in general and the development and implementation of renewable energy systems in particular. This article takes a closer look at whether and how the 3/11 disaster

influenced the political, economic, and scientific and technological exchange between the EU and Japan.

The 3/11 triple and especially the nuclear disaster in Fukushima led to a major revision of energy policies in Europe, especially in Germany, Italy and Switzerland, but to a lesser degree also in the Nordic countries. In June 2011, only three months after 3/11, the German parliament decided to out-phase nuclear power by 2022. This decision also intensified the debate about political and technical solutions for an energy shift away from nuclear power and fossil fuel towards renewable energy resources. While this and similar decisions (or at least public referenda and discussions) in a few other European countries such as Switzerland, Italy and Spain can be considered domestic policy changes, therefore not directly relevant to EU-Japan relations, they nonetheless had an immediate effect on the Japanese government and public discourse about their new energy plan for 2012 and beyond. Beginning in July 2011, preparations to develop a new energy plan began in three Ministry of Economy, Trade, and Industry (METI) committees, which in July 2012 had led to the Diet decision to introduce an FIT (feed-in-tariff) and other measures to increase the use of renewable energy. Many of the ideas and proposals discussed in the METI committees reveal a strong influence of the examples in Europe, especially in Germany.¹

The basic questions asked in this article are whether the 3/11 triple disaster further deepened the diplomatic relationship and political, economic and science cooperation between the EU and Japan. Therefore, this article analyzes European political and economic interests in influencing the Japanese discourse about its energy policy, economic interests in the EU and Japan, as well as the interests of the science and technology community in both regions, given that these issues had been areas of cooperation at least since the 2001 EU-Japan Action Plan.

While the EU did not have a distinct opinion about the future of nuclear power, with member states disagreeing about this issue, cooperation in the field of nuclear security and the development and implementation of alternative sources of energy were in European interests, since they had developed and/or implemented some of these technologies. The European Commission had been actively helping in the implementation of a closer economic and science-and-technology exchange for the preceding twenty years. With the enactment of the Lisbon Treaty in 2009, the European External Action Service (EEAS) was in charge of EU foreign policy. The EU Delegation in Tokyo had been actively engaged in a dialogue with the Japanese government and had also been central in organizing the exchange between Brussels and Tokyo. This article analyzes not only the activities of the EEAS, but also the wide range of affiliated organizations. Traditionally, EU-Japan relations were strongest in economic and

research-and-technology matters, and the Japanese governments, including and particularly the first and current Abe administration, had a strong interest in pushing the shared norms and ideas with Europe, and that was often called “value diplomacy,” focusing in particular on shared political and social values.

II. EU-JAPAN COOPERATION AFTER 3/11

1. Cooperation in the wake of the disaster

In the days following the 3/11 disaster, the EU responded by offering emergency assistance to the victims of the earthquake and tsunami, and on March 14 the EU mobilized the EU civil protection system and offered to extend, along with about 20 individual EU member states, search-and-rescue assistance to the affected region. The Japanese government declined the original offer (European Commission 2011b). The EU Delegation in Japan began to coordinate possible European deployment of search-and-rescue teams and assembled information in a Monitoring and Information Centre (MIC) about the situation on the ground and the situation in the Fukushima Dai-ichi nuclear plant (European Commission 2011c, European Commission 2011d). On March 15, Japan began to request assistance through the EU Civil Protection Mechanism (MIC) and the EU responded by sending emergency relief supplies to Japan. Several EU member states such as France, Sweden, and Germany had already begun to deploy emergency personnel and rescue teams in the affected areas of northeast Japan. On March 18, the European Civil Protection team was also deployed (European Commission 2011e, European Commission, Committee of the Regions (2011a).

In April 2011, the EU Commission decided to fund EU humanitarian efforts after the triple disaster with 10 million Euros, adding to the 5 million it had already pledged, especially to help the people housed in temporary shelters. This enabled the Red Cross and other NGOs to send a limited number of emergency personnel and equipment to help about 8,000 families in the most affected areas in Iwate, Miyagi, and Fukushima (Delegation of the EU to Japan, April 4, 2011).

At the occasion of her visit to Japan in November 2011, EAAS High Representative Catherine Ashton visited Miyagi Prefecture to observe the destruction of the earthquake and tsunami firsthand. She also emphasized that the “EU was among the first to offer both material and financial aid to Japan” and the EU had contributed €15 million in financial and humanitarian assistance to the devastated regions of Tohoku (European Commission 2011f).

After the immediate humanitarian aid and some reconstruction efforts in the first weeks after 3/11, the EU Commission's Humanitarian Aid and Civil Protection and the government of Japan began to institutionalize their cooperation

after natural disasters. By March 2013, they² agreed to negotiate an EU-Japan partnership to build resilience in order to facilitate a smoother exchange of data and information for enabling a faster and better-coordinated response in the future (European Commission 2012a, 2013a).

2. The 2011 Japan-EU Summit

After the disaster and humanitarian relief assistance of the European Union in the immediate post-3/11 period, the EU's most important diplomatic action was formulated in the EU-Japan summit meeting, which took place in Brussels on May 28, 2011. Despite the still ongoing crisis in Japan, Prime Minister Naoto Kan flew to Brussels to attend the summit presided by the President of the European Council, Herman Van Rompuy, and the President of the European Commission, Jose Manuel Barroso. The summit negotiations had three main themes: (1) strengthening EU-Japan relations with the aim of drafting a new document on economic and diplomatic³ relations and the framework for an Economic Partnership Agreement; (2) closer cooperation on responding to global challenges such as climate change, the Millennium Development Goals (MDGs), counter terrorism, reform of the UN system, and nuclear non-proliferation; and (3) regional issues such as peace and stability in the Middle East and North Africa, human rights violations in Syria, as well as the nuclear program of North Korea and Iran.

Because of the ongoing crisis in Japan, less time was spent on these original issues, and the May 2011 summit represented more of a continuation of existing negotiations and projects (more below) and the need for a scoping exercise for an FTA/EPA. But a significant amount of time was also spent on the question of how the natural and nuclear crisis could be used as a catalyst for closer cooperation in nuclear safety and other areas, as well as possibilities for joint development of energy resources and technologies. Therefore, the final summit statement mentioned the then ongoing efforts by the EU and its member states to assist Japan in this time of crisis and declared a "Year of Solidarity" or "Kizuna" (bonds of friendship) (Ministry of Foreign Affairs 2011a).

A central element of the agreement for closer cooperation was nuclear safety but not yet the development and cooperation of alternative energy resources. This was understandable, because in May 2011 both parties were still caught up in the unfolding drama of the Fukushima nuclear plant accident and concerned about the negative effects of the nuclear plant disaster. Both parties supported stricter controls of nuclear power stations in collaboration with the International Atomic Energy Agency (IAEA) and the G8/G20. Neither the EU itself nor the EU Commission proposed a re-evaluation of the use of nuclear power in general, but they had to manage public demands for stricter enforcement

of existing control mechanisms. The UK and France never felt the necessity to reconsider the use of nuclear power, but supported the so-called stress tests of European nuclear plants in the summer of 2011.

The EU-Japan summit also passed an important Annex, which laid out details of joint projects to ensure the safety of the Fukushima nuclear power plant and lessons learned from this incident (Ministry of Foreign Affairs 2011b). This annex lists three main fields of closer cooperation between the EU and Japan: (1) the safety of nuclear power plants; (2) the development of other energy resources; and (3) cooperation in humanitarian assistance, emergency relief, and disaster preparedness and prevention. Table 1 below lists the agreed areas of cooperation.

TABLE 1: MAIN AREAS OF EU-JAPAN COOPERATION AFTER 3/11

A. In the area of nuclear safety
1. Assessing and sharing lessons learned from the accident at the Fukushima-Dai-ichi nuclear power plant
2. Cooperate in monitoring the impact of the accident
3. Promote international standards and appropriate measures on nuclear safety and emergency preparedness/response
4. Strengthen their research and development cooperation on nuclear safety
5. Cooperation in decontamination and decommissioning
6. Cooperation on mitigation of radiological, nuclear and other risks in other countries
B. Reinvigorate energy cooperation
1. Strengthen their dialogue on energy policy
2. Promote research cooperation
3. Defining international standards in emerging technological fields
4. Greening the economy
C. Cooperation in Humanitarian Assistance
1. Humanitarian assistance policy and emergency relief operations
2. Natural disaster preparedness and prevention
3. Share experience on structural design codes for buildings

Sources: Ministry of Foreign Affairs (2011B)

The present discussion will focus on actual projects that were either initiated or received further support because of the EU-Japan 2011 Summit meeting. The annex of the meeting includes both aspects of the original question of this article, namely nuclear safety and the joint research and development of renewable energy resources. It will review the type and depth of this collaboration and assess whether it can be seen as evidence that 3/11 influenced EU-Japan cooperation in the energy sector in the immediate period or will likely influence future cooperation.

On the organizational level, the first part of the agreement of cooperation focuses on nuclear safety and mentions specifically the cooperation between

Euratom and Japanese government organizations for nuclear safety institutions. The second area is energy cooperation and the agreements specifically mention information exchange and joint research on photovoltaics, power storage, carbon capture and storage, and supporting cooperation in smart grids and hydrogen fuel cells, and the deployment of sustainable low-carbon technologies. On the organizational level, the agreement specifically mentions the International Energy Agency (IEA), the International Partnership for Energy Efficiency Cooperation (IPEEC), and the International Renewable Energy Agency (IRENA).

To what extent have European and Japanese governments, research and business organizations taken advantage of this new framework and what does it portend about future cooperation in the energy sector between EU institutions and EU members states? This analysis will look into the following four core objectives: (1) Dialogue on energy policy, (2) Research cooperation, (3) Defining international standards, and (4) Greening the economy.

3. Dialogue on energy policy

Energy and climate policy has recently become a core element of EU foreign policy. In September 2011, the European Commission informed the European Parliament and two Committees (the European Economic and Social Committee and the Committee of the Regions) on the importance of international cooperation in the security of energy supply in a communication titled “The EU Energy Policy: Engaging with Partners beyond Our Borders” (European Commission 2011g). Since the EU is highly dependent on energy imports,⁴ it faces growing competition for fossil fuels and is concerned that growing demand and consumption will threaten the global climate with all its negative consequences. Therefore, the EU sees closer cooperation and a more efficiently organized and regulated international energy market through the cooperation with “partners beyond our borders” as central to achieving this goal.

Japan, as a major consumer and importer of natural gas and oil, and a country with a strong interest in decreasing greenhouse gases, is considered one of the major partners for the EU. The EU is particularly interested in the joint development of renewable energy and electricity storage. At a time when Japan suffered from the Chinese decision to limit the export of rare earths and other minerals required for the production of electronic goods or solar panels, the EU is also particularly interested in joint research to reduce or find substitutes for such materials, and particularly mentions the uncertainties of their supply (European Commission 2011g). That is why the EU believes that “coordinated action by the EU with other technology leaders, including the U.S. and Japan, should advance these efforts” (European Commission 2011g: 11) to “reinvigorate their joint activities to advance energy security, sustainability and safety objectives. Research and

innovation on energy technologies, defining international standards, smart grids and nuclear safety should be at the heart of EU's efforts with Japan.” (European Commission 2011g: 11).

4. EU-Japan cooperation in energy policy

The EU and Japan share the problem that a significant share of their energy demand is met by imports, which makes energy security a very high political and economic priority. While Japan's energy import dependency for natural gas and oil is already almost 100 percent today and will most likely remain unchanged until 2030, the EU as a whole also imports about 60 percent and over 80 percent of its gas and oil supplies, respectively, and these levels are projected to increase to over 80 percent and 90 percent, respectively, by 2030 (International Energy Agency 2012).

It was almost an historical coincidence that the European Economic and Social Committee on March 15, 2011 – four days after the 3/11 explosion in the Fukushima Dai-ichi nuclear power plant – issued an opinion on energy supply on the question, “what kind of neighborhood policy do we need to ensure security of supply for the EU?” The EESC opinion stressed – for the first time – the necessity to develop “strategic partnerships” on energy efficiency and security of energy supply with the U.S., Brazil, China, and Japan. More specifically, the EESC opinion stated, “Cooperation and agreement here should specifically cover supply security and fair prices; giving priority to energy efficiency; and cutting greenhouse gas emissions” (European Commission (2011h: C 132/19).

A few months later, in September 2011, the European Commission asked in a final report to the European Parliament for recommendations for cooperation concerning the purchase and security of energy resources. The report mentioned the necessity of further cooperation between LNG gas consumers such as Japan, China and India, in order to make the market more transparent and flexible (European Commission 2011g: 10). The report called for greater focus “in all dialogues on good energy governance and investment, sustainable energy and energy efficiency” (European Commission 2011g: 10).

Under the keywords “partnerships with other industrialized countries,” in the development of technologies to further renewable energy resources and ways to store energy, the European Union called for collaboration with major consumers in the development of future technologies such as the United States and Japan (European Commission 2011g: 12). The report suggested that the EU and Japan should “reinvigorate their joint activities to advance energy security, sustainability and safety objectives,” especially R&D on “smart grids and nuclear safety” (ibid: 11), by inviting countries like the U.S. and Japan, to “accelerate the development... (Of) low carbon technologies and energy efficiency” and by raising the “reciprocity

principle in the EU energy-related science and technology cooperation as envisaged under the Innovation Union.” Examples of the latter are included in the “Europe 2020 Strategy” (ibid: 12).

5. *EU-Japan Energy Dialogue*

The exchange of experts and know-how concerning renewable energy has been going on since 1987, and intensified in 2007 with the inauguration of the EU-Japan Energy Dialogue, as a response to common challenge to energy security and climate change, initiated in January 2007 by then Prime Minister Shinzo Abe and EU Commission President Barroso in Brussels (Delegation of the EU to Japan 2007a). In the first round of the EU-Japan Energy Dialogue, held in June 2007 in Brussels, both sides agreed that the forum should discuss energy security, climate change, and energy efficiency – all issues that became even more prominent after 3/11. The Dialogue was supposed to become a forum for policy makers and academic and industrial experts to facilitate and expedite the development of more efficient energy technologies and their implementation in the relevant markets (Delegation of the EU to Japan 2007b).

By the time of the second Dialogue meeting in November 2007, both sides were in the middle of preparations for the 2008 G8 summit to be held under the presidency of Japan in Tōyako, Japan, and they agreed that it would be important to set up an International Platform on Energy Efficiency, especially among the countries with the highest levels of energy consumption (Delegation of the EU to Japan 2007b). The EU-Japan cooperation on this idea was successful and the Tōyako G8 summit issued a “Declaration of Leaders’ Meeting of Major Economies on Energy Security and Climate Change” (Ministry of Foreign Affairs 2008a) with a view to making this the platform for further discussion at the Copenhagen climate change conference in 2009.⁵ By the time of their third Dialogue meeting, in February 2009 in Brussels, the focus for the EU was the development of an Energy Market Package concerning gas and electricity, a Climate Change Package, and an Energy Efficiency Package (Delegation of the EU to Japan 2009a). Shortly thereafter, in March 2009, both sides also organized an EU-Japan Joint Strategic Workshop on Energy Research and Technological Development, with the intention to “improve and expand existing EU-Japan S&T cooperation activities and assist the scientific community and industry to make progress on present and future European and Japanese research initiatives with respect to energy and climate change” (Delegation of the EU to Japan 2009a). Both sides discussed energy technologies such as photovoltaic, power storage, and carbon dioxide capture and storage (CCS) (Ministry of Economic, Trade and Industry 2009a). For the next two years, the official EU energy dialogue received less attention, while business and science exchange continued.

After 3/11, the significance of energy security for Japan became more urgent again, and the two sides held the 4th EU-Japan Energy Dialogue in June 2012 in Tokyo. Tokyo had been struggling to deal with the aftermath of the Fukushima accident and almost all nuclear power stations had gone off the grid, requiring Japan to significantly increase oil and gas imports. Consequently, energy security and the long-term development of renewable energy were now even more central issues for Japan.

In some European countries, the Fukushima accident had triggered a debate about the future of nuclear energy. But even those countries which had no intention to decrease their reliance on nuclear energy, such as France and the UK, long-term energy security and assistance of Japan had become more important than before 3/11. To reflect the increased importance of the energy issues after 3/11, the 4th EU-Japan Energy Dialogue meeting was moved for the first to the ministerial level. On this occasion, EU Commissioner for Energy Guenther Oettinger met Japanese Minister of Economy, Trade and Industry, Yukio Edano, in Tokyo to “reinvigorate bilateral energy cooperation.” Central in their discussions were the safety standards of nuclear power in general and Fukushima in particular. In order to achieve a higher level of nuclear safety, the two sides considered an international legal framework on nuclear safety as useful. In addition, the two sides discussed the improvement of comparable safety standards and the joint research and development of PV and energy storage technology, which had already been discussed in earlier meetings (Delegation of the EU to Japan 2012a). Both issues had been part of the 2011 EU-Japan Summit noted earlier. In June 2012, Japan was close to finalizing their new energy legislation. One of its biggest obstacles was the divided electric grid in the country and the small number of electric energy providers. Therefore, the conclusion of the fourth EU-Japan Energy Dialogue meeting was to stress the need to improve exchange about the European experience of liberalizing their electric energy sector including the smart grid technology (Delegation of the EU to Japan 2012a).

Using the momentum of the Energy Dialogue, the EU Delegation in Japan had also organized a seminar titled “Japan's Energy Scenarios: How to Strike the Balance between Nuclear and Renewables.” The three main speakers discussed ways to foster closer EU-Japan cooperation to develop and deploy renewable energy. The experience in the UK and Germany where the grids had been partially privatized and feed-in tariff introduced was of particular interest to the Japanese side (Delegation of the EU to Japan 2012b). Similar seminars and workshops were held in September 2012 and January 2013, where European and Japanese government representatives, energy business representatives, and energy scientists discussed energy conservation technologies for private households and businesses with the intention of facilitating business and technology transfer between Europe and Japan.⁶

III. EU MEMBER STATES' RESPONSE TO 3/11

1. Germany

Germany is probably the country where the nuclear disaster in Fukushima had the most severe repercussions. After only a few months of deliberations in a government initiated energy “ethics panel” in July 2011, the German parliament decided to reverse a 2010 government decision to extend the time span of nuclear power plants and move towards the phase-out of nuclear power by 2022. This decision also meant that Germany needed to speed up its already ongoing shift towards increasing the use of renewable energy. It is beyond the limits of this analysis to elaborate on the details of this decision. Suffice it to note that the decision could have two potential effects on German-Japan relations. First, it could increase collaboration in the development and use of renewable energy and a smart energy grid. Second, the German decision could trigger more mutual investment: Japanese developers of renewable energy technology in Germany, and German developers in Japan. While both have already begun among businesses and the science community, it is more difficult to identify a political initiative by the German government specifically as a result of the 3/11 disaster. Instead, we note that the German government sponsors and supports a large number of events, symposia, business fairs and exhibitions where German and Japanese businesses and science and technology experts exchange ideas and kick off or expand bilateral or European projects.

2. France

France plays a particularly important role in Japan's nuclear policy because it is in charge of the reprocessing of spent nuclear fuel from Japanese nuclear power plants. In 1972 Japan and France signed a bilateral nuclear cooperation treaty to promote the peaceful use of nuclear energy. The 1990 revision of this treaty included nuclear non-proliferation and joint research and development of nuclear technology and industrial standards. The French company COGEMA is under contract with Japanese electric power companies to enrich uranium and reprocess used fuel cells, while the reprocessed plutonium and nuclear waste are then returned to Japan. The only Japanese reprocessing plant in Rokkasho (Aomori Pref.) was also constructed in cooperation with French companies utilizing French technology. This close cooperation means that there is a wide range of joint research projects and close relationship as far as Japanese nuclear power is concerned. The unique bilateral arrangement that requires Japan to ship radioactive nuclear fuel rods and plutonium more than 10,000 km away to another continent through dangerous international waters has

come under criticism from coastal countries on the route. It also means the security of the entire nuclear energy in Japan is dependent on France, as well as the UK, with which Japan has a similar agreement (Ministry of Foreign Affairs 2005a; Embassy of France to Japan 2008a).

The strong French reliance on nuclear power and the close business and research relationship between France and Japan are the reasons why France reacted with particularly heightened concern when all safety measures failed in Fukushima Dai-ichi. While there has generally been much higher support for nuclear power in France compared to neighboring Germany, the seriousness of the inability of a highly industrialized and high-tech country like Japan to deal with this incident raised renewed doubts among the French population. The French government was concerned that it could seriously undermine the Japan-French nuclear energy relationship and future French business in Japan. Therefore, the highest priority of France was to downplay the seriousness of the accident and to stress the manageability of a serious disaster like the one in Fukushima.

The concern about the future of nuclear power generally and French-Japanese nuclear cooperation specifically was certainly the reason why the French government offered Japan any help the latter needed to deal with the nuclear crisis immediately after the accident. Only three weeks after 3/11, on March 31, 2011, French President Sarkozy became the first foreign leader to visit Japan after the disaster. After meeting with Prime Minister Kan, Sarkozy said in a press conference that France had offered Japan the use of French experts and technology (including robots) to help get the situation in Fukushima under control. Overall, the French government and President Sarkozy tried to make sure to portray Fukushima as an exceptional event that was triggered by a natural disaster, i.e., the earthquake and tsunami, and that it could be brought under control with the technology and expertise of France and Japan. At this early stage, it was not yet clear that Japanese audits prior to the accident were at least in part responsible for the failure of the Fukushima Dai-ichi plant in the aftermath of the tsunami, but in late March 2011 the French president and the Japanese prime minister were still focused on the necessity of independent audits to ensure the safety of the nuclear plants (Embassy of France to Japan 2011a).

Less than two months later, Prime Minister Kan went to Paris for talks with French Prime Minister François Fillon and President Sarkozy. Kan had already gone through difficult negotiations about nuclear safety with TEPCO and was beginning to have doubts about how the audit system had worked over the last decades, and the Japanese prime minister used his meetings in Paris to stress that Japan would work on establishing the highest nuclear safety standards. He also confirmed that Japan would begin to invest more into renewable energy and energy savings but, most importantly for France, he also stated that nuclear power

would continue to be part of Japan's four-pillar energy policy. Sarkozy reiterated the French commitment to Japan's nuclear program and its support to heighten safety standards (Ministry of Foreign Affairs 2011c). The two governments discussed and expressed support for the continuation of their strategic relationship in subsequent bilateral meetings. On October 23, 2011, for example, Noda met with Fillon in Tokyo and discussed the reconstruction of Fukushima and nuclear safety and agreed that both countries would continue to cooperation on these matters (Prime Minister's Office 2011a). In October, both leaders agreed that Japan and France would "establish a committee composed of officials of the two countries to strengthen bilateral cooperation in all areas related to nuclear energy" and that they shared "the same vision of the importance of the commitment of institutions, industries, research institutions and universities...to promote the deepening of this cooperation and give it a multifaceted character" (Embassy of France to Japan 2011b, author's translation). For Noda and Fillon, it was important to calm the anxious public about the possible health hazards of nuclear power and to stress that they were jointly working on ways to make the peaceful use of nuclear power even safer than before. France even suggested sending their own experts to "calm down" the Japanese public about the risks of nuclear power. The official statement read: "this collaboration will include increasing public understanding of the two countries" (Embassy of France to Japan 2011b, own translation).

In the meeting of the two countries' foreign ministers, Koichiro Gemba and Alain Juppé, on January 13, 2012, the French side pressed on the issues of "strengthening and continuation" of the "Japan-France cooperation in the fields of nuclear power and energy," as well as "developing new business partnerships, technology and prospects for an agreement global partnership" (Embassy of France to Japan 2012a, author's translation). The bilateral agreement on the continuation of their nuclear collaboration was finalized at the first meeting of the Franco-Japanese Nuclear Committee on February 20, 2012, in Tokyo. At the center of this collaboration was the joint development of international guidelines for nuclear safety (to be accomplished by the end of 2012) to ensure a "good future for atomic power plants as long as they meet the highest level of safety" (Eric Besson, French industry and energy minister) as the best way to reduce CO₂ emissions (Embassy of France to Japan 2012a, author's translation; Ministry of Foreign Affairs 2012a).

In summary, these examples amply demonstrate that the French government made strong efforts to ensure that the reputation of nuclear power did not suffer too much as a result of the Fukushima nuclear power plant accident and to make it appear as if everything was under control. Naturally, France has strong business interests not only because 80 percent of its electricity is produced by nuclear power but also because it is an exporter of nuclear technology and benefits

directly from Japan's need to reprocess spent fuel outside the country, including in France.

3. The UK

The United Kingdom is the other European country that has invested quite heavily in nuclear power and has a long history of collaboration with Japan on nuclear technology and business. Therefore, the British government also reacted nervously when the Fukushima accident triggered a debate about the future of nuclear power in Japan (and in Europe). Britain also offered Japan to assist in the cleanup of the Fukushima nuclear plant and also send industry experts to Japan. During the discussions of the UK-Japan 21st Century Group in Warwick in May 2011, representatives from both countries discussed a wide range of issues but the 3/11 disaster and the possible repercussions for Japan-UK relations played were central. The UK-Japan Energy Dialogue, a regular meeting of representatives from relevant ministries from both sides recommended deeper business cooperation between the two countries to jointly discuss "low carbon economic growth" including smart grids and renewable energy, energy efficient transport technology, and also nuclear power (Ministry of Foreign Affairs 2011d).

IV. SCIENCE AND RESEARCH COOPERATION

1. EU level cooperation

The EU and Japan have had very strong scientific exchange programs for well over 20 years, but in June 2011, a Joint Committee on Scientific and Technological Cooperation between the EU and Japan was inaugurated.⁷ Among the first topics discussed were the joined development of photovoltaic cells and the storage of energy to be developed by European and Japanese research institutes.⁸

The annex to the May 2011 EU-Japan Summit document listed scientific exchange in the area of nuclear safety and the development of alternative energy resources as their main objectives. In a series of meetings of researchers and representatives of European and Japanese government ministries and related offices, both sides began to find better answers to the question why the earthquake and the tsunami had such devastating effects, how a similar disaster could be prevented in the future, and how the security of nuclear facilities could be improved. The EU needed to identify Japanese needs for assistance, how nuclear safety institutions in Europe and Japan could better collaborate and exchange knowledge and expertise in the future. For this reason, the EU Delegation in Japan helped set up meetings in December 2011 between the EC

Directorate General of the Joint Research Center and EC Directorate General (Energy) and Mie Oba, then Commissioner of the Japan Atomic Energy Commission (Cabinet Office), to talk about follow-up initiatives related to international research on nuclear safety and lessons of the Fukushima disaster. Another element of the EU-Japan collaboration is the training of the staff of nuclear facilities under the guidance of Euratom, on the basis of the lessons learned from the Fukushima accident. The details of the research and training were made available in "Euratom Fission research (past and follow-up)" and "Euratom Fission training (NUSHARE - a "Training and Information program, drawing the lessons from Fukushima").

One major scientific research project in the area of energy development with European and Japanese partners, but also with U.S., Chinese, Indian, Korean, and Russian participation, is the International Thermonuclear Experimental Reactor (ITER), an international nuclear fusion research and engineering project with its headquarters in Cadarache, France. The project started in 2007 and is run by the International Fusion Energy Organization for the Joint Implementation of the ITER Project.⁹ In their September 2013 ITER ministerial meeting, the Japanese Director-General of the ITER Organization, Osamu Motojima, said that "good progress (had) been made through the enormous collaborative effort" (European Commission 2013a). The ITER project is not only the largest public multi-nation research project in Europe and East Asia (Ponjaert and Béclard 2010), but it has also become a prestige project what all the member states, and it seems to have gotten even more political attention after 3/11.

2. German-Japanese cooperation

Germany and Japan have a long history of collaboration in the field of science and technology. After 3/11, many of the existing research partnerships have been used to intensify existing research projects about earthquake protection, and emergency repose to natural disasters. The decision to phase out nuclear power and the necessity to hasten the development of alternative energy and a shift of German energy policy has triggered many new projects in the energy sector and when the German Federal Minister of Science and Research, Annette Schavan, visited Japan in October 2011, the central theme of the talks with her Japanese counterparts and representatives of Japanese universities and think tanks was the shift in energy supply (German Federal Ministry of Education and Research 2011a). For example, in November 2011, the Ministry organized another conference on electro mobility and smart grid technology in Tokyo, in order to talk about the market for electric cars in Japan by introducing German and other models (German Federal Ministry of Education and Research 2011b). Just a month later, the German Ministry (BMFT) organized an excursion for

Japanese policymakers, developers and the media to observe wind parks in Northern Germany (German Federal Ministry of Education and Research 2011c). In August 2011, METI began deliberations on a new energy bill, which came into force in July 2012, including an FIT (feed-in-tariff). The Japanese legislation closely resembled a similar German law.

In summary, the German government reacted quickly after 3/11 to intensify research exchange with Japan, especially in the area of renewable energy and energy supply issues. By late 2013, it became clear that only very few Germany companies actively invested in Japanese wind farms and the largest share of imported PV technology into Japan came from China, not from EU countries. However, building wind parks, especially offshore, has a much longer planning and construction phase than solar parks, therefore, there remained prospects for German, British, and other European companies' making inroads into Japanese markets.

3. Greening the economy

In 2012, Japan was only the 7th largest external trading partner of the European Union with 3.4 percent of the latter's external trade, which was smaller than the share of Switzerland (6.8%) and Norway (4.4%) (See Table 1).

TABLE 2: EU MAJOR TRADING PARTNER (2012)

Rank	Partners	Bill Euro	Share
	Extra EU27	3,478	100.0%
1	United States	497	14.3%
2	China	433	12.5%
3	Russia	336	9.7%
4	Switzerland	237	6.8%
5	Norway	150	4.2%
6	Turkey	122	3.5%
7	Japan	119	3.6%
8	Brazil	76	2.2%
9	India	75	2.2%
10	South Korea	75	2.2%

Sources: Ministry of Finance, Japan

On the other hand, the EU is a much more important trading partner for Japan. After the People's Republic of China (21%) and the United States (13%), the European Union is Japan's third most important trading partner, accounting for 11% of Japanese external trade. Almost half (46.5%) of EU imports from

Japan are machinery, mechanical appliances and electronic goods and 20% are vehicles and transportation equipment.¹⁰

Japanese food products became a major concern for European consumers after the Fukushima nuclear accident as it triggered fear about radiation and triggered import restrictions on such products in Europe. However, they made up only 0.2% of Japanese exports to the EU countries, and the share of vegetables or live animals was negligible. EU exports to Japan were in mostly the same categories but at different levels and different orders. Over one-fourth (25.6%) of EU exports to Japan were chemical industry products including pharmaceuticals, 16 percent were mechanical appliances and electronic goods, and 12.9 percent were vehicles and transportation equipment.¹¹

TABLE 3: JAPAN'S MAJOR TRADING PARTNERS (2012)

Rank	Partners	Bill Euro	Share
	World (all countries)	1,434	100.0%
1	China	258	18.1%
2	United States	171	11.9%
3	EU27	128	8.9%
4	South Korea	79	5.5%
5	Australia	58	4.1%
6	Thailand	52	2.7%
7	Saudi Arabia	48	3.4%
8	United Arab Emirates	41	2.9%
9	Indonesia	40	2.9%
10	Malaysia	39	2.7%

Sources: Ministry of Finance, Japan

Between 2006 and 2008, EU-Japan trade was relatively stable, but the 2008 financial crisis led to a steep decline in Japanese exports. Trade between Japan and the EU dropped after the 2008 global financial crisis, from 18.7 trillion Yen (2008) to 12.2 trillion Yen (2009). Japanese exports to the EU fell by more than 40 percent, from 11.4 trillion Yen (2008) to 6.7 trillion Yen (2009), while EU exports to Japan fell by 30 percent, from 7.3 trillion Yen to 5.7 trillion Yen (2009). By 2010, overall bilateral trade was growing again, Japanese exports to the EU by 13 percent, to 7.6 trillion Yen (2010), and EU exports to Japan by 5 percent to 5.8 trillion Yen (2010) (see table 3). (All data from Ministry of Finance, Japan). After the 3/11 disasters, trade between the EU and Japan remained relatively stable. Monthly and quarterly data show that the EU imports from Japan declined in the second quarter of 2011 by only 2.7 percent, but then increased by 0.3 percent in the third quarter and declined slightly in the fourth

quarter.

Since some Japanese manufacturing was severely affected by the 3/11 earthquake and tsunami, Japanese manufacturing and eventually global exports declined in the second quarter of 2011, and exports to the EU bottomed at around 1.55 trillion Yen in the third quarter of 2012. On the other hand, imports from the EU to Japan increased slightly after 3/11, namely from 6.4 trillion Yen (2011) to 6.6 trillion (2012), and further to an estimated 7.3 trillion Yen (2013).

However, because Japan's total imports especially of oil and gas increased quite significantly after 3/11, the share of EU exports to Japan remained almost unchanged between 2010 and 2012, and in 2013 remained at about 9.4 percent. While there was a trade surplus for Japan throughout the 1990s and 2000s, the balanced turned around in the third quarter of 2012. EU-Japan trade deficit was estimated to grow to 750 billion Yen in 2013. Because of this development, the share of Japanese exports to the EU declined from 14.1 percent to 11.6 percent between 2008 and 2011, after 3/11 it declined another 2 percent, to 9.7 percent in 2013. (All data: Ministry of Finance 2013)

While there were somewhat greater fluctuations in monthly bilateral trade data between Japan and the largest trading partners within the EU, namely Germany, the UK, and France, 3/11 did not have any major impact on bilateral or bi-regional trade. The economic decline and the world financial crisis of 2008 had a much larger negative effect on bilateral trade. Between 2000 and 2010, European imports of goods from Japan decreased by 30 percent (from 92 billion Euros to 64 billion Euros), while European exports to Japan remained relatively stable, at around 45 billion Euros.

Another reason why EU imports to Japan did not increase more after 3/11 might be the strengthening of the Japanese Yen to the Euro between March 2011 and mid-2012. While the Yen/Euro exchange rate was 113 Yen to the Euro on March 11, 2011, the Euro fell under 100 Yen by early 2012. After the LDP victory in the House of Representatives elections in December 2012, Japan's economic stimulus and money easing package weakened the Japanese currency in relation to the Euro. The Yen had slipped to 120 Yen/Euro in January 2013 and further to 130 Yen/Euro in the fall of that year, making products made in the Euro zone less competitive.

V. CONCLUSION

The 3/11 disaster did not fundamentally change the relationship between Europe and Japan. However, energy policy has already become a more central policy field for both sides. As shown in the preceding analysis, European countries clearly recognize the importance of energy resources but they do not agree on the role nuclear power should play in a future energy mix in Europe and

Japan.

This article has attempted to analyze the influence of 3/11 on the inter-regional (EU-Japan) and the bilateral level. At each of these levels, it examined developments in the political, economic, and research fields. In the end, it seems that besides the business interests of both countries, influencing through soft power in the broadest sense is much visible but less newsworthy than influence through and for security and military means, as in the case of US-Japan or China-Japan relations.¹²

Should Japan also decide to slowly phase out nuclear power, this could be good for EU-Japan relations for two reasons. First, it could strengthen the need for exchange and collaboration about an energy shift in highly industrialized countries. Second, it can have a long-term impact on the world energy market. An energy shift away from nuclear and fossil fuel towards greater renewable energy use, is an area where Germany and Japan can cooperate much more closely than it does now. Germany has been moving in this direction for quite some time and has intensified its efforts after deciding to phase out nuclear power by 2022. It is dealing with all associated problems associated, such as rising energy prices in the country. However, the restarting of nuclear power stations has become such a contentious issue in Japan, and the prices for imported gas and oil are also on the rise, leading to growing trade deficits. These challenges should deepen the exchange and technical and business cooperation between Germany and Japan, as well as between the EU and Japan.

The large number of EU-Japan and bilateral fora on energy issues has intensified the debate and exchange of information between the EU and Japan about technical as well as implementation issues. The robust increase in installations of private and commercial solar PV systems and plans to increase the use of on- and off-shore wind parks after the introduction of the feed-in-tariff are an indication that Japan is now serious about an energy shift. Yet, there are still many technical challenges (e.g., two separate power cycle frequencies in East and West Japan), bureaucratic hurdles (e.g., approval process, etc.), and industry-related issues (e.g., monopoly of electricity supply, no separation of grid and source technology) and political obstacles (e.g., dominant LDP with strong ties to the nuclear village). Given the need to establish long-term technical and policy solutions to the electricity demand, however, it is hoped that the lessons learned in Europe and some of its member states may still influence Japan's energy policy in the future. If Japan and the EU are successful in demonstrating that the increased use of renewable energy and a fundamental reform of the energy market will not hinder but can support economic stability, this will eventually lead to changes in the world energy market.

In July 2018, Japan and the EU finalized their Strategic Partnership (SPA), which is the next big step in developing closer cooperation in the area of

security, including energy security. Specifically article 17 (industrial cooperation) stresses the “exchange of views and best practices on their respective industrial policies on areas such as innovation, climate change, (and) energy efficiency”, and article 26 (Energy) stresses the intention of both parties to “enhance cooperation and, where appropriate, close coordination in international fora and organizations, in the area of energy, including energy security, global energy trade and investment, the functioning of global energy markets, energy efficiency, and energy related technologies” (European Commission, and High Representative of The European Union for Foreign Affairs and Security Policy 2018). While the effect of the SPA cannot yet be assessed, it is still significant that cooperation in developing more effective energy technologies and coordination in international for as it is one central part of it.

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ENDNOTES

- ¹ Based on an analysis of the minutes and documents of the METI renewable energy committee and an interview with one of its members in February 2012.

- ² Kristalina Georgieva, the European Commissioner for International Cooperation, Humanitarian Aid and Crisis Response and Akihiro Ohta, Minister of Land, Infrastructure, Transport and Tourism of Japan.
- ³ Successors of the 1991 Joint Declaration and the 2001 Action Plan.
- ⁴ Import shares: Gas: 60%, Oil: ca. 80%.
- ⁵ It is beyond this article's scope to discuss the limited success of the Copenhagen summit. Here the focus is on the EU-Japan cooperation shortly before and after 3/11.
- ⁶ Examples include the seminar on "Energy Security & Sustainability Challenges: The EU, Japanese & Asian Responses," held in September 2012 in Brussels (EU-Japan Center for Industrial Cooperation 2012a), and the January 2013 seminar on "Promoting Energy Efficiency Actions in Industry through Corporate Networks in Europe and Japan," held in Tokyo. Both seminars were organized by the EU-Japan Centre for Industrial Cooperation (EU-Japan Centre for Industrial Cooperation 2013a).
- ⁷ This was an element of the EU-Japan Science and Technology (S&T) Cooperation Agreement of March 2011.
- ⁸ Co-funded by Japan's New Energy and Industrial Technology Development Organization (NEDO) and the European Commission (Delegation of the EU to Japan 2011b).
- ⁹ The Agreement on the Establishment of the ITER International Fusion Energy Organization for the Joint Implementation of the ITER Project was signed by all participating countries in December 2006 and came into force in October 2007 (European Commission 2006a).
- ¹⁰ Chemical products account for 9.2 percent and optical and photographic equipment for 8.5 percent. Apart from plastics (4.8%) and base metals (3.6%) all other product categories are under 1%.
- ¹¹ Optical and photographic equipment accounted for another 10 percent, and prepared food and beverages for 5 percent.
- ¹² Examples for research on EU-Japan security cooperation are: Midford 2012, Tsuruoka 2012, and Mykal 2011.