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### The need for Japanese leadership in global energy policy: a German perspective

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# THE NEED FOR JAPANESE LEADERSHIP IN GLOBAL ENERGY POLICY - A GERMAN PERSPECTIVE

Prof. Dr. Klaus Töpfer, Ulrich Mans

*Awaiting Japan's general election on 16 December 2012, the rest of the world is well-advised to watch closely the outcome of the vote. After the Fukushima catastrophe, many people in Japan are increasingly concerned about the continuation of nuclear power. The alternative would be an ambitious strategy to scale up renewable energy technologies. If this were done, Japan could change the way we all think about energy. With a Japanese decision to move towards a low-nuclear, high-renewables energy supply, world market prices for renewable energy from solar, geothermal and wind sources would drop sharply, and would make these technologies more affordable. A Japanese leadership role in promoting renewables would therefore contribute to solving a global energy dilemma: to secure a sustainable energy supply for a growing world population.*

## THE GERMAN ENERGY TURNAROUND

Some 9000 kilometers away from the Fukushima Daiichi Nuclear Power plant, the events of 11 March 2011 have led to a radical turnaround of Germany's energy policy. The new energy vision is now known as 'Energiewende' and means firstly that its nuclear electricity supply (which is good for some 25 per cent of the total) will have to be replaced with renewables until 2022. Secondly, it is geared towards a new energy system that will be largely based on low carbon, renewable energy technologies by 2050. In other words, Germany steps out of nuclear without reducing its carbon targets. Even though the impact on national infrastructures is undisputed, we should remind ourselves of the significance that a successful energy change in one of the world's largest economies could have for the world's energy future. With the promotion of more sustainable energy technologies, Germany in fact contributes to solving an increasingly urgent global energy dilemma: to secure a sustainable energy supply for a growing world population. With Japan's emerging debate about a possible nuclear phase-out, Germany might no longer be the only country committed to an energy policy turnaround and can serve as an insightful example on how to combine low-carbon energy supply with a new economic growth model.

In his recent Foreign Affairs article 'Cleaning up Coal', R.K. Morse highlighted the need for developing countries to fight poverty, much more than they can afford to prioritize policies mitigating Climate Change. He also argued that developed nations have a role to play in helping the developing world bringing about the technological innovations that are needed to accomplish this goal. Whereas Morse calls for scaling up the global funds for finding clean coal technologies in order to bring down the enormous impact coal has on carbon emissions, a similar argument can be

made for renewable energy. The world's high-tech nations, in particular post-Fukushima Japan, should take the lead in promoting renewable energy as a serious alternative to conventional power supply, so that these become affordable to those countries where modern energy systems are still in the making.

Recovering from the national shockwaves of Fukushima, the Japanese are increasingly worried about the risks involved in a business-as-usual scenario. Nuclear power is considered a necessity for safeguarding energy security by some, and is seen as an unacceptable risk in the face of valid alternatives by others. Prime Minister Mr. Yoshihiko Noda in September 2012 pushed ahead with a zero-nuclear agenda

***„A DECISION TO PROMOTE SUSTAINABLE ENERGY TECHNOLOGIES WOULD QUICKLY MAKE JAPAN THE WORLD'S MOST IMPORTANT TEST-BED FOR THE FUTURE OF ENERGY.“***

and tabled a new energy strategy, which included the phase-out of nuclear power in the 2030's. The cabinet decided that the new energy plan – as well as its timing – would be continuously reviewed in the light of the proposed strategy. The strategy itself however has not been endorsed by the cabinet as of December 2012. The political power play between the advocates of nuclear and renewables is likely to determine much of the debate in the coming months, and it is safe to assume that the election result will be a decisive factor in Japan's future energy vision. In this light, Japan's vote could have a major impact on the way we all think about energy.

The Japanese election comes at a time when renewable energies are increasingly cost-effective, and alternative energy technologies offer the opportunity for national politicians to seriously consider the possibility of creating sustainable, low-carbon, nuclear-free energy systems. A decision to pro-

mote sustainable energy technologies would quickly make Japan the world's most important test-bed for the future of energy. Japan and Germany, the world's 3<sup>rd</sup> and 4<sup>th</sup> largest economies, can showcase that this is technically feasible and economically sound.

## **JAPAN MOVING TOWARDS PRO-RENEWABLES**

In post-Fukushima Japan, day-to-day politics is coming back after reconstruction policies had been the absolute priority for 1.5 years. Part of the new political landscape is a growing skepticism among the population towards nuclear power. In March 2012, 80 per cent of the Japanese supported a nuclear phase out,<sup>1</sup> and popular demonstrations against restarting the suspended nuclear power plants have become a regular weekend event in Tokyo. Reflecting this trend, a series of participatory meetings held across the country in summer 2012 witnessed strong sentiments in favor of a nuclear phase-out. In addition, the governors from 35 (of 47) prefectures founded the Japan Renewable Energy Council together with Mr. Son Masayoshi (the CEO of Softbank Corp),<sup>2</sup> Fukushima Prefecture is planning to become a front runner in providing a zero-nuclear energy mix to its citizens,<sup>3</sup> and the Tokyo Municipality in June 2012 announced that it wants to invest in its own power supply including geothermal power generation and other forms of renewable energy in order to make the city more independent from the centralized power infrastructure.<sup>4</sup>

Moving towards a low-nuclear or even nuclear-free Japan would be a major shift from the original plan to increase the share of nuclear energy to 53 per cent by 2030. Replacing today's 30 per cent of nuclear power (totaling 278.5 billion kWh in 2009) would then call for a massive scale-up of renewables. Particularly wind, solar, geothermal and biomass would have to become the major contributors to the national supply. Wind introduction potential is estimated up to 50GW for on- and off-shore by 2050;<sup>5</sup> solar PV could bring up 75.2GW into the national energy supply. The future of geothermal power is a much debated issue and holds the promise of up to 23GW generation capacity, but this depends on socio-economic feasibility and an effective management of the trade-offs involved in this (80 per cent of the most favorable locations are within national parks and there is a resentment that geothermal power production would negatively affect the country's centuries old hot spring tradition and tourism). Biomass estimates are much harder to come by but particularly waste-to-energy is considered to have a significantly higher potential than the current installed ca-

capacity of 3GW.<sup>6</sup> Next to renewables, natural gas would also be part of such a new energy mix, even though this would come at the cost of higher dependency on a resource of which availability from international producers and (world market) prices remain uncertain. A further increase of oil and coal, which have increased by 69.9 and 6.8 per cent respectively since 2011 in order to cover the nuclear power production loss,<sup>7</sup> is, one should argue, no serious option given the amount of CO<sub>2</sub> emissions this would incur.

***„IN CONTRAST TO THE JAPANESE ENERGY LANDSCAPE BEFORE THE FUKUSHIMA ACCIDENT, A GREAT DEAL IS ALREADY HAPPENING.“***

Given the large potential of alternative sources of energy, the most pragmatic answer to Japan's quest for a revised, post-Fukushima energy plan lies in greater diversification, and a greater share of renewables. Already today, the country is one of the leading renewable energy nations in the world: Japan is the 3<sup>rd</sup> largest solar PV market in terms of installed capacity.<sup>8</sup> In addition, geothermal energy resources are projected to have the 3<sup>rd</sup> largest capacity in the world.<sup>9</sup> However, the share of renewables (excluding hydropower) in national primary energy supply stood at less than two per cent in March 2012 and is significantly lower than in other OECD countries. For example, wind energy in Japan counts for 0.4 per cent of total power supply in 2010,<sup>10</sup> in comparison to 28.3 per cent in Denmark in 2011.<sup>11</sup>

In contrast to the Japanese energy landscape before the Fukushima accident, a great deal is already happening. The feed-in-tariff (FIT), which in its first form had been much less ambitious than similar schemes in other countries, was re-launched in July 2012: it now is the most attractive feed-in-scheme in the world. It quickly attracted much interest, in particular from the international business community. A wind park developer for example can calculate with a 20-year guarantee of ¥23.1/kwh (€0.23/kwh),<sup>12</sup> which is double the amount given to a wind park developer in Germany today. For solar PV, the tariffs are somewhat lower but still very high in international comparison, with ¥42/kwh (€0.43/kwh for production of up to 10kw installed capacity). For now, this means that Japan is quickly becoming one of the best business opportunities for renewable energy companies, which is a remarkable break with the recent past. One of the key questions for the sector is how soon (and in what steps) the Japanese government will reduce these tariffs in the coming years so that the required upgrades in grid infrastructure can be done.

There is little doubt that the new Japanese FIT can serve as an important catalyst for a national energy transition. Such a trajectory not only supports the growing wish in Japan for a less risky, low-nuclear policy,<sup>13</sup> it also carries the hope to benefit from the still largely untapped potential of a green economy, driven by a booming business sector for renewable energy, (material) efficiency products and electricity storage solutions (for intermittent energy sources such as wind and solar power). The green economy combines the prospects of a more sustainable future for the Japanese people with a sustainable business model for Japanese firms. It also adds a new dimension to Japan's successful performance as the world's top class high-tech economy. For example, Softbank President Masayoshi Son, the richest business person in Japan, has been very active in promoting renewable energy alternatives immediately after the Fukushima disaster. On the day the FIT was announced he officially started one of Japan's largest solar power plants in Kyoto. A number of other large companies quickly responded to the nuclear catastrophe by investing in alternative energy. Kyocera Co., a Kyoto-based electronic and ceramics manufacturer, is planning to start a solar power plant of 70MW capacity in Kagoshima Prefecture (Southern Japan)<sup>14</sup> and Lawson, one of the biggest convenience store operators in Japan, decided to equip 2.000 of its 10.000 stores with solar power panels under the FIT scheme.<sup>15</sup>

### **POST-FUKUSHIMA JAPAN IN INTERNATIONAL PERSPECTIVE**

The domestic developments in Japan have to be seen in the light of the international dimension of such an industrial evolution. A technology drive made in Japan that fuels investments in cutting edge renewable energy innovations would have a significant impact on the global business case on renewables – and with it on the successful deployment of sustainable energy solutions in the rest of the world. The Fukushima watershed comes at a time when the world's population has reached seven billion; and 50 per cent of them live in energy-intensive urban agglomerations. The United Nations estimates that by 2030, the world will have 8.3 billion inhabitants under a medium fertility rate scenario, and 9.3 billion by 2050. By that time, urbanization will be around 67 per cent. Rural electrification is a predicament, too. The IEA estimates that in 2011, 1.3 billion people had no access to electricity, of whom 95 per cent live in Sub-Saharan Africa or developing Asia, and 84 per cent live in rural areas.<sup>16</sup>

This is a forceful reminder of the fact that finding sustainable energy solutions is not a luxury problem, nor is it

'only' a climate change problem. It is also, and foremost, a humanitarian problem. We will need more energy (and more basic services that require energy) for those who do not yet have access to these services if we are to live in a peaceful, more equitable world. In order to achieve this humanitarian goal, we need more readily available – and a continuous improvement of – sustainable energy technologies. This is in stark contrast to the more affluent parts of the world, where

***„AN EMERGING JAPANESE DOMESTIC MARKET FOR RENEWABLE ENERGY WOULD NOT ONLY BOOST POLITICAL COMMITMENT ACROSS THE GLOBE, IT WOULD ALSO HAVE A MAJOR IMPACT ON WORLD MARKET PRICES.“***

we experience a similar trend, which is not driven by energy security issues, but spurred by the fears for Climate Change and increasing concerns about resource scarcity. A growing number of political leaders in the North therefore have switched gears and work on creating a more sustainable energy system. Germany, Switzerland and Belgium already decided to phase out their nuclear power supply, and in a recent development, French President Hollande announced to close one of its 58 nuclear plants by 2016, which is part of his election promise to reduce the country's dependency on nuclear power (from 75 per cent to 50 per cent).<sup>17</sup>

If Japan indeed decided on a pro-renewables trajectory, it would change the business case for a potentially large portion of the world's future energy supply. And with both Japan and Germany showing a clear commitment to reducing nuclear energy, political momentum elsewhere is likely to grow, investments in sustainable technologies are set to accelerate further, and the UN could count on a broad political support to its 'sustainable energy for all' initiative. The UN's push for alternative energies is only one of the recent developments in global governance. The creation of the International Renewable Energy Agency (IRENA) in 2009 and the Rio+20 Conference in June 2012, which highlighted the need to promote the idea of a green economy, are also part of this trend. While concrete definitions for 'green' have thus far remained aloof, the global debate about sustainability is gaining momentum, and recognizes the need to address the world's energy challenge as part of a more sustainable, equitable world.

As one of the most advanced economies and with a prominent track record in high-tech innovation, Japan can make a difference in supporting global governance in the field of renewables. An emerging Japanese domestic market for renewable energy would not only boost political commit-

ment across the globe, it would also have a major impact on world market prices: as a rule of thumb, costs for photovoltaic fall by twenty per cent for each doubling of installed capacity – in which Germany's FIT played an important role.

***„ALREADY TODAY, RENEWABLE ENERGY TECHNOLOGIES ARE INCREASINGLY AFFORDABLE FOR COUNTRIES IN THE DEVELOPING WORLD.“***

The Japanese new FIT is set to lead to further cost reductions in the medium-term. Already today, renewable energy technologies are increasingly affordable for countries in the developing world. Thailand, Morocco and Kenya for example have embarked on ambitious renewable energy programs, for on-grid and off-grid energy schemes. An increasing amount of small island states are looking into options to become independent from shipped fossil fuel supplies, and less prosperous countries like Ghana or Senegal are also interested in introducing sustainable energy solutions, but are still held back because of financial constraints. They view high-tech economies such as Japan and Germany in the lead to developing these technologies, so that they reach marketability.

Looking at the German renewables market helps putting some of these developments into perspective. Since the FIT in Germany has created one of the largest markets for renewables worldwide (3rd after US and China), Germany's renewable energy policy has led to doubts whether incentive schemes characterized by high FITs are the best way to promote energy innovation. The biggest problem, one could argue, lies in the fact that instead of increasing the costs for energy externalities (such as environmental degradation, air pollution and CO<sub>2</sub> emissions) it gives a supplement to renewable energy sources so that it becomes competitive with conventional energy sources. Another problem is that this scheme is then bankrolled through the energy bills of consumers, with major exemptions for the most energy-intensive industries. This system has led to a public debate in Germany about fairness: prices for those who consume the most are the lowest. Another dilemma lies in the fact that many of Germany's fast-growing solar PV companies have thus far been unable to develop business models that are independent from the generous FIT. A large number of businesses now have little time to adapt to a changing world market.

Notwithstanding this restructuring process within the solar PV sector, it is generally accepted that the FIT policy triggered a significant share of the innovation that has led to new technologies being developed in Germany and

elsewhere (notably China), higher efficiency and ultimately, lower costs per energy unit. Also, Germany created a total of 382.000 jobs in the sector by 2011.<sup>18</sup> And there is reason for optimism: recent reports estimate that Germany's solar players, particularly those businesses offering high-tech and IT solutions beyond the easy-to-assemble modules, are well-positioned in a booming global market (which is set to double in the next ten years).<sup>19</sup>

Japan's new FIT policy can replicate this effect. With its sizable home market potential, Japan would in turn create an attractive investment arena for global players looking for investments. These large, institutional investors (such as pension funds) are increasingly turning away from nuclear, and looking for investment opportunities in the renewable energy business. The reason for this is largely economic: a wind park that can be built within 12-18 months is much more attractive in terms of payback compared to a nuclear power plant, which takes 10-15 years to build.<sup>20</sup> The perceived risks associated with nuclear power, coupled with a growing anti-nuclear sentiment in many societies, are adding to this reluctance. Renewable energy investment benefits from this shift. 2008 was the first year when investment in renewables surpassed investment in fossil fuel technologies; and in 2011, the total investment in renewable energy amounted

***„THIS QUEST FOR SUSTAINABILITY STANDS REPRESENTATIVE FOR A NEW GROWTH MODEL THAT CAN HELP A LOT IN SHIFTING GEARS FROM THE ,OLD' ECONOMIC THINKING TO A ,NEW' ERA OF A POST-INDUSTRIAL ECONOMY.“***

to US\$ 257 billion, a seventeen per cent increase to 2010 – and a six-fold increase compared to 2004. With the combination of growing investment interest, long-term political commitment in some of the world's largest economies and the benefits of an increasingly global market for renewable energy products, energy systems around the world can benefit from the declining cost curve. Renewable energies would become increasingly affordable as a consequence, even to developing countries. From a global energy perspective, this would be a move in the direction of a global contract for sustainability that deserves our full support.

As the world is coming to terms with the aftermath of the 2008 financial crisis, this quest for sustainability (and with it the interest in renewable energy technologies) stands representative for a new growth model that can help a lot in shifting gears from the ,old' economic thinking to a ,new' era of a post-industrial economy. If Climate Change is taken

seriously, it is above all a matter of energy, and energy is the engine of today's global economy. What is needed is a different understanding of how societies can live and produce in a more sustainable way – preferably within a generation's time so that Climate Change can be slowed down. Renewables and energy efficiency innovation hold the key to such

**„JAPAN CAN POSITION ITSELF AS A KEY ADVOCATE FOR A NEW ECONOMIC GROWTH MODEL.“**

a transition, and this is the setting in which future competitiveness will unfold. Those nations too slow to take decisions today risk being left behind in the race to transform the global economy.<sup>21</sup>

In this light, a Japanese commitment towards renewables would also have a profound impact on geopolitics. Japan can position itself as a key advocate for a new economic growth model, and, by doing this, Japan would rebrand its position in the geopolitical arena. It can surpass the US (which is locked in a debate about recovery rather than sustainability), it can keep up with China (which has set a bold strategy to become a leading low carbon economy) and it can show Europe that there is a market for those new environmental technologies that are being developed across the continent.

At the end of 2012, it seems that Japan is moving towards such an energy transition. In addition to the generous feed-in-tariff, the government announced its plan to create a US\$628 billion renewable energy market by 2020.<sup>22</sup> Innovation in the field of energy has moved up on the priority lists, and an increasingly large amount of research grants is being allocated for energy-related topics such as renewable energy sources like bioenergy, newly emerging sources of renewable energy and energy use. In a related development, the Tokyo Metropolitan Government started an investment fund in June 2012 with an initial capital of US\$19 million (to be increased to US\$200 million) to invest in wind, solar and smart grid projects in Japan.<sup>23</sup>

At the same time, Japan's nuclear legacy makes it difficult to move ahead with radical changes towards an alternative, more diverse power supply: a nuclear-free Japan would render obsolete many of the existing institutional realities, ranging from national budget allocations to local employment in the nuclear power sector.

**BEYOND THE NUCLEAR LEGACY: THE GERMAN EXPERIENCE**

Facing its own energy transition and its many conflicting interests, the German example shows that such a systemic change of the energy system can only occur if it is done step

by step. Four general observations may help to reflect on what has worked thus far in Germany regarding the process of its ongoing energy transition.

The first lesson is that public debate is crucial. The Energiewende started long before Fukushima and finds its origins in the 1970's. Many of the early activists were driven by environmental concerns. A pro-ecology movement had already emerged with the publication of the Club of Rome report *The Limits of growth* in 1972, and popular discontent with the safety risks associated with nuclear energy emerged in 1974 in response to the government's plans to build a nuclear power plant in southern Germany. The Green Party was founded in 1980 and contributed significantly to the emerging debate about nuclear power in the aftermath of the 1986 Chernobyl nuclear disaster. The slogan „nuclear power? no thanks!“ became an increasingly popular notion and eventually brought the Green Party into federal parliament. The Greens served as the coalition partner with the social democratic party from 1998 to 2005. In 2000 the original feed-in-tariff scheme was revamped to make it much more attractive for independent power producers to invest, and in 2001, the government decided to phase out nuclear power by 2022. The latter in fact cemented the success of the green movement's steady call for a nuclear-free Germany. When in October 2010 the conservative-liberal government under chancellor Merkel then decided to backtrack on this decision, it became clear that the wish for a nuclear-free country had not (yet) been a national consensus. This only changed with Fukushima when the German parliament again decided to phase out nuclear energy. Looking back, it can be said that without the decade-long opposition to nuclear power and the public debate that it spurred over the years (which marks a major difference to other European nations such as France or the UK), the Energiewende would not be what it is today: a national project, which enjoys a two-third support across all parts of society.

The second lesson is that ethical considerations are an important prerequisite for finding a consensus that holds. Economic feasibility cannot compensate for long-term societal risks. Germany's Ethics Commission for a Safe Security Supply, established in response to the Fukushima disaster with the mandate to formulate policy recommendations, came up with a clear statement against the continuation of nuclear power in Germany. The commission argued in its final report „Germany's energy transition: a collective project for the future“<sup>24</sup> that politicians have the ethical responsibility to replace nuclear power with less risky alternatives if



these are feasible. In the case of Germany, the possibility of scaling-up ongoing renewable energy diffusion was therefore considered the only legitimate policy choice from an ethical point of view in the face of the conceivable risks associated with nuclear power. However, such an ethical position does not necessarily have to argue for an immediate ban of nuclear. Neither is it an ethical argument against those still using nuclear energy. What it does, however, is to argue for a process that is continuously increasing the share of those energy sources that carry lower risks than nuclear power.

The third lesson is that the political context determines whether such an ethics-based argumentation can succeed against day-to-day Realpolitik. First, in the case of Germany, it is important to note that Fukushima acted as a trigger, which led to the immediate response by Chancellor Merkel to put on hold the government's 2010 plans to prolong nuclear power generation. This three months moratorium served to dictate the time given to the Ethics Commission in order to come up with policy recommendations for a new energy vision. This political necessity for a quick response is the second element of the German policy context in 2011. Third, the commission's diverse set up was an important success factor and helped to ensure that its report was taken as a genuine guideline for the government's policy vision. Stakeholders from science, politics, civil society and from the business community were all part of the commission, and agreed unanimously on the final recommendations. In this process, the broad participation from all sides of the political spectrum served on the one hand to establish the needed support for a new zero-nuclear vision, while on the other hand worked to dismantle the previous coalitions that were supportive of the nuclear option. This is reflected in the notion of 'collectivity' that marks the overall tone of the report, and explains how the German lower house voted almost unanimously in favor of a nuclear phase-out by 2022. Germany's Energiewende might not have come about without this particular constellation of trigger, time pressure and broad participation.

The fourth lesson is that the international embedding is crucial. In a global economy, no sizable country can decide on major changes to its energy system without affecting others. The German decision to finally phase out nuclear power within ten years came as a surprise to many and left little room for the administration to create alliances, and to foster a greater understanding among for example neighboring countries. With the process in its second year, the international impacts become increasingly visible, and what

started as a German Energiewende is gradually turning into a project with an increasingly important pan-European dimension. We see new patterns of cross-border electricity trading (such a solar energy being exported to France during strong, sunny winters), changes to investment decisions in the nuclear energy sector (the German energy utility RWE announcing to sell its British subsidiary in charge of nuclear power plants in the United Kingdom) and emerging efforts to speed up international grid integration. For example, there are plans to connect Scandinavian pump storage dams to the German electricity grid in order to store wind energy from the North Sea (NorGer) and the vision of complementing Europe's energy supply with desert solar power from North Africa (Desertec). Many of these projects are in their pilot

***„JAPAN, AND WITH IT OTHER INDUSTRIALIZED ECONOMIES, SHOULD EMBRACE THE CHALLENGE OF MAKING RENEWABLE ENERGY EVER-MORE COST-EFFECTIVE.“***

phases, and it is hard to judge which of these international schemes can be successfully implemented. But the diverse set of ideas that are being developed across Europe show that Germany stands to benefit from international cooperation if it is to reach its own 2022 deadline.

These lessons underscore the fact that the energy transition in Germany has been above all a political process, much more than a debate about technological feasibility. Given the longstanding interests within Japanese energy politics, it is safe to assume that political considerations are similarly dominant for deciding on Japan's transition options, and that the country's energy future is unlikely to be implemented overnight. Eleven flight hours away from Berlin, the Japanese government now faces the choice of creating a more sustainable energy system. The German experience offers an interesting example for those who are planning to navigate political decisions – be it in Japan or elsewhere – towards a pro-renewables trajectory. Japan as one of the world's leading high-tech economies can prove that there is a sustainable way to generate the amount of energy that is needed for the world's growing population in the coming decades, and that a modern economy stands to benefit from investing in the emerging renewable energy industry.

The United Nations' year of sustainable energy for all could become the starting point for the re-inauguration of Japan's 30-year-old leadership role in renewable energy. Back in the 1980's, Japan was among the first large-scale innovators in the field of solar energy. In dealing with the Fukushima tragedy, Japan can turn its energy dilemma into

an opportunity – for its own economy, for its geopolitical outlook, and for the rest of the world. Japan, and with it other industrialized economies, should embrace the challenge of making renewable energy ever-more cost-effective. The market alone cannot do this; national energy policies must set the tone in order to make this happen. We can only expect the required level of innovation to unfold if governments create the regulatory conditions that make renewable business a promising endeavor. The Japanese decision against dependency on a nuclear power would be such a step.

For Germany, and for other countries with an emerging renewables industry, a low-nuclear Japan could become an important ally in making sustainable energy a global business case. The German political experience adds to this opportunity: pro-renewables advocates in politics, civil society and business stand ready to establish a strong energy partnership between Japan and Germany. As the new Minister of Environment, Nature Conservation and Nuclear Safety announced in August 2012: Germany is keen to work together with a group of pioneer countries that are committed to renewable energy scale-up. Japan should be part of such an effort. If Berlin and Tokyo are seen as leaders in sustainable energy, this is hard (and potentially very costly) for others to ignore.

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