

EU Energy Policy and the Energy Situation in Germany

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Introduction

Japan's energy policy is undergoing fundamental review due to the accident that occurred at the Fukushima No. 1 Nuclear Power Plant administered by the Tokyo Electric Power Company (TEPCO). This accident occurred as a result of the Great East Japan Earthquake and Tsunami of March 11, 2011. As it lacks natural resources, Japan should review its policies with a view to maintaining and increasing its industrial competitiveness. Focusing on energy policy overseas, this article will present an overview of the energy policy of the European Union (EU), which leads the world in terms of countermeasures to combat global warming, and investigate the energy situation in Germany, which has announced that it is breaking with nuclear power generation.

The economy of the EU—the largest economy in the world

In order to place EU energy policy in context, it is worth considering the status of the EU within the international community. If the scale of its economy is expressed in terms of population and GDP, the 27 nations of the EU have a combined population of approximately 500 million and a GDP of approximately 17.55 trillion dollars.¹ As such, the population of the EU is more than four times that of Japan, while the EU's GDP is more than three times Japan's GDP. By both these measures, the EU also far outstrips the USA, which has a GDP of approximately 15 trillion dollars and a population of approximately 300 million. This makes the economy of the EU the largest economy in the world (see Figure 1).

With the signing of the Treaty of Paris in 1951, the EU was established as the European Coal and Steel Community (ECSC). The six founding nations were Belgium, West Germany, France, Italy, Luxembourg, and the Netherlands. Since then, it has undergone enlargement on five occasions and is currently comprised of 27 member nations. Over the course of 50 years of deepening and enlargement, the EU's standing in the international community has grown, and EU policies, such as its countermeasures to combat global warming, have come to exert significant influence globally.

For example, through the process of regional integration, the EU has introduced European standards and regulations to its member nations; at the same time, however, it has also spurred the spread of European standards and regulations both to neighboring non-EU countries and to Asian countries such as China. If the EU is able to spread European standards and regulations to other countries through its countermeasures against global warming, it will be easy for it to seize the initiative as the global rule-maker and spread European rules to the rest of the world that will put European companies at an advantage in international business.

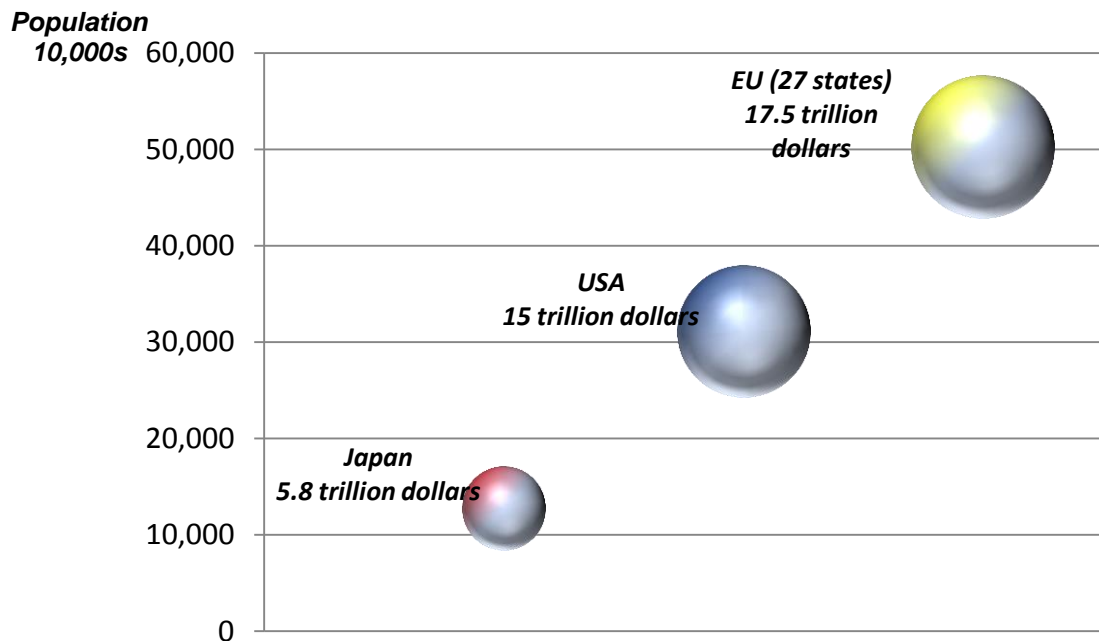


Figure 1 Size of the economies of Japan, the USA, and the EU in 2011
Source: JETRO's Data by Country and Region (JFILE)

The EU's promotion of renewable energy

In order to comprehend EU energy policy, it is necessary to consider it both from the perspective of the EU itself and from the perspective of the member states. This is due to the nature of policy formulation within the EU—while it is the European Commission that devises policy at the EU level for the overall benefit of EU citizens (the citizens of the 27 member nations), it is the member nations themselves that formulate their own specific individual energy policies, such as their own energy mixes.

EU energy policy goals can be summed up as follows: (1) the achievement of energy security, (2) the enhancement of industrial competitiveness, and (3) the primacy of measures to combat global warming. With a view to putting these policies into practice, the EU announced a new energy strategy titled “Energy 2020,” touting as its target the “three 20s.” The specific objectives of this strategy are as follows: first, by the year 2020, emissions of greenhouse gases will be reduced to 20% of 1990 levels; second, the share of renewable energy as a proportion of final energy consumption will be increased to 20%; third, energy efficiency will be increased by 20%.

Energy 2020 encourages energy efficiency by offering investment incentives for improved construction. It also advances a ten-year plan for the development of energy networks for electricity and gas with a view to building an integrated energy market for all of Europe, and it seeks the supply of energy to consumers at reasonable prices, improved energy technology, and stronger cooperation with neighboring countries.

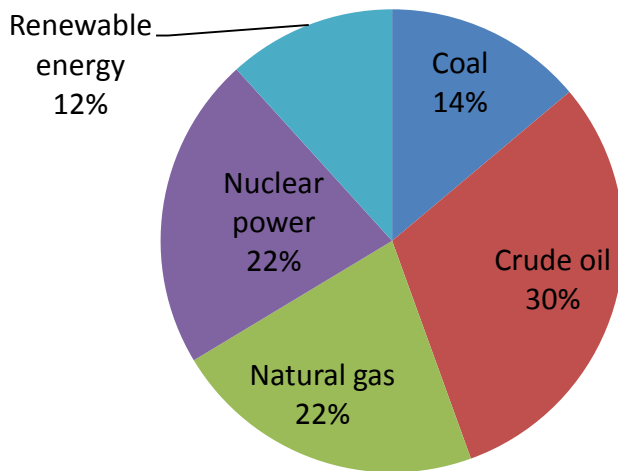


Figure 2 A breakdown of energy consumption by type in the 27 EU states in 2010
Source: Eurostat (August 2012)

In this environment, the adoption of renewable energy in the EU has been progressing steadily. A comparison of energy consumption in the 27 EU states in 2010 with that of 1990 reveals that consumption of renewable energy as a proportion of total consumption has been increasing rapidly, rising from 4% in 1990 to 12% in 2010 (see Figure 2).

Germany boosts employment by popularizing renewable energy

The EU develops state-level policy for its member nations by force of law (in the shape of EU regulations and directives), and the member nations attempt to change their national laws so as to inject EU policy into their own national energy policies. As part of the complementary relationship between the EU and its member nations, the EU seeks to stimulate the economic activity of its 27 member states (that is, to develop an environment in which EU companies and industries can maintain and increase their competitiveness within the international community) with a view to creating economic growth and higher levels of employment.

In its energy policy, the EU is proclaiming that it will strengthen European leadership by means of energy technology and innovation, and it is placing particular emphasis on technology relating to wind power, sunlight, biomass, smart grids, nuclear-related technology, and carbon capture and storage (CCS). It was within this context that—very quickly after the accident at the Fukushima nuclear power plant—EU member Germany announced that its federal government was aiming to break from nuclear power generation and would expand its use of renewable energy.

Even before this, Germany had been moving forward with the adoption of renewable energy. A comparison of electrical power generation by source for Germany and Japan for 2010 reveals that, while renewable energy accounted for only 3.1% of energy production in Japan, the level in Germany (including solar, wind, geothermal, and other fuel sources) was 14.8% and growing steadily (see Figure 3).

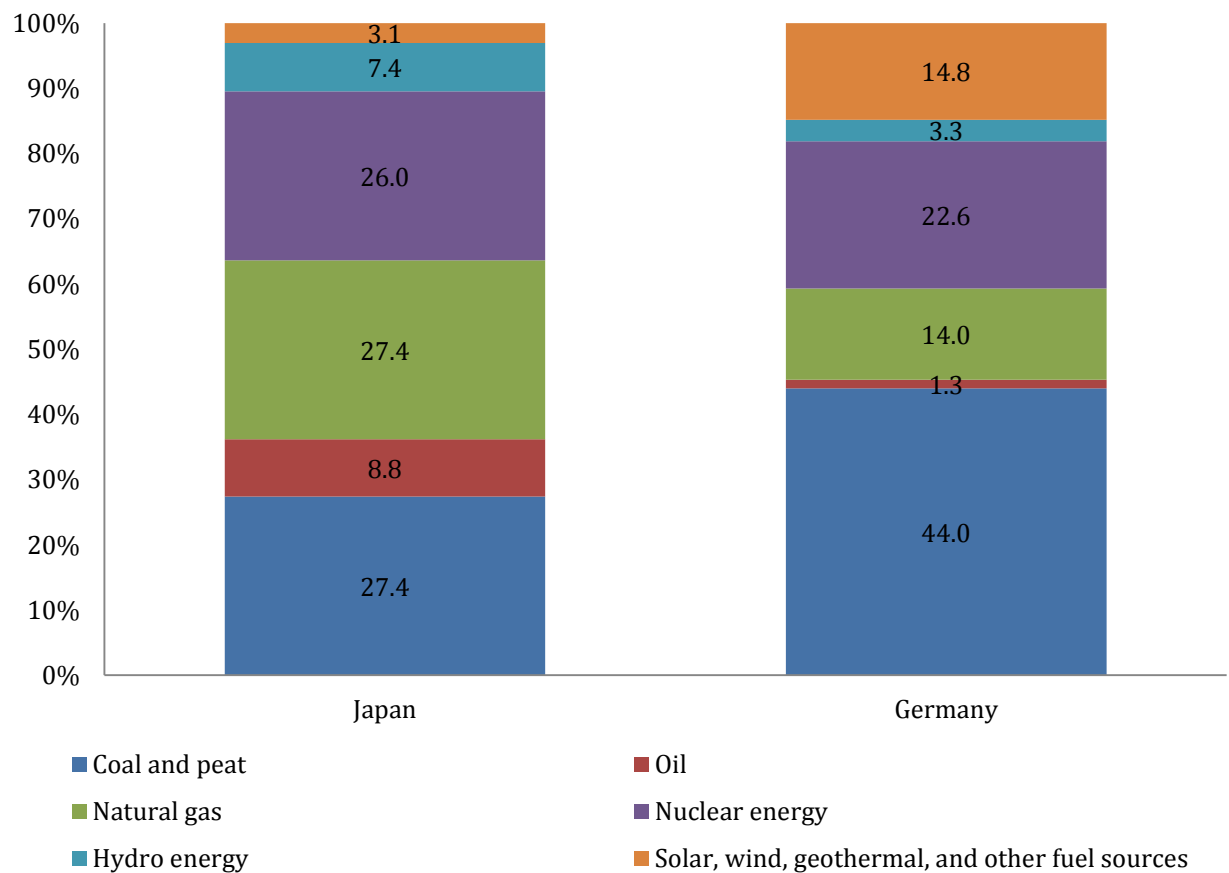


Figure 3 A comparison of electrical power generation by source in Germany and Japan for 2010

Source: Energy Balances of OECD Countries 2012, published by the International Energy Agency (IEA)

As Germany has pushed forward with the adoption of renewable energy, it has also seen employment increase in this sector. In 2011, Germany's Federal Ministry for the Environment, Nature Conservation and Nuclear Safety put the number of people working in jobs related to this field at 381,600. This figure represents a 4% increase over 2010 and is well over twice the number that was employed in this field in 2004, representing an increase over seven years of 138% (see Figure 4). The jobs of 280,000 of the people employed in this sector were created as a result of the enactment of Germany's Renewable Energy Law.

A breakdown of these job numbers reveals that, combined together, the solar, biomass, and wind power fields account for more than 90% of the total, with jobs in the solar and biomass fields being the most numerous (each accounting for 32% of the total) and jobs in the wind power sector accounting for a further 26.5%. Since there is the expectation in Germany that the renewable energy sector is an effective source of new jobs, it is anticipated that the nation will further increase the adoption of renewable energy.

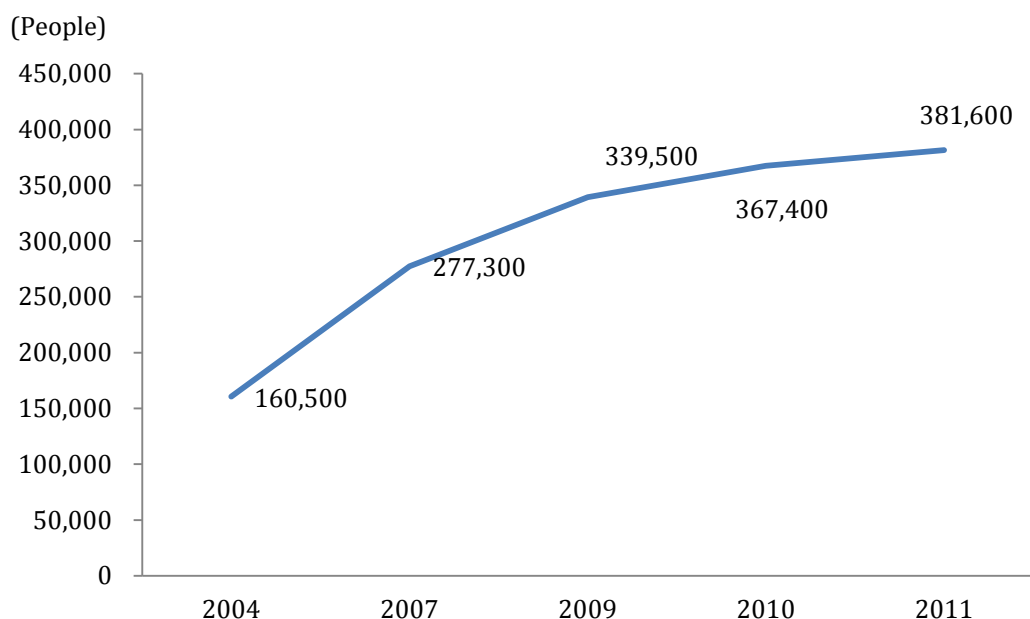


Figure 4 Number of people employed in the renewable energy sector in Germany
Source: *Brutbeschäftigung durch erneuerbare Energien in Deutschland im Jahr 2011 (March 2012)*

Germany's energy policy in the context of its abundant energy resources

Germany boasts abundant energy resources. Germany's level of self-sufficiency in primary energy stands at an impressive 32.6%. It is able to domestically procure 58.9% of the coal and peat that it uses and to supply itself with 13.2% of the natural gas and 3.4% of the crude oil that it needs. The result is that, even when Germany has problems importing energy, it is able to make up any shortfall from its own abundant sources of primary energy.

By contrast, Japan's level of energy self-sufficiency is far below that of Germany and stands at a mere 5.1% (if nuclear energy and renewable energy are discounted). Hence, Japan needs to recognize that its energy situation is vastly different from Germany's. Japan is poor in natural resources (it possesses only minimal deposits of crude oil and natural gas, and it is reliant on substantial imports of energy from overseas), while Germany maintains a high level of energy self-sufficiency based on its abundant resources of coal—despite being the largest consumer of primary energy in Europe (see Figure 5).

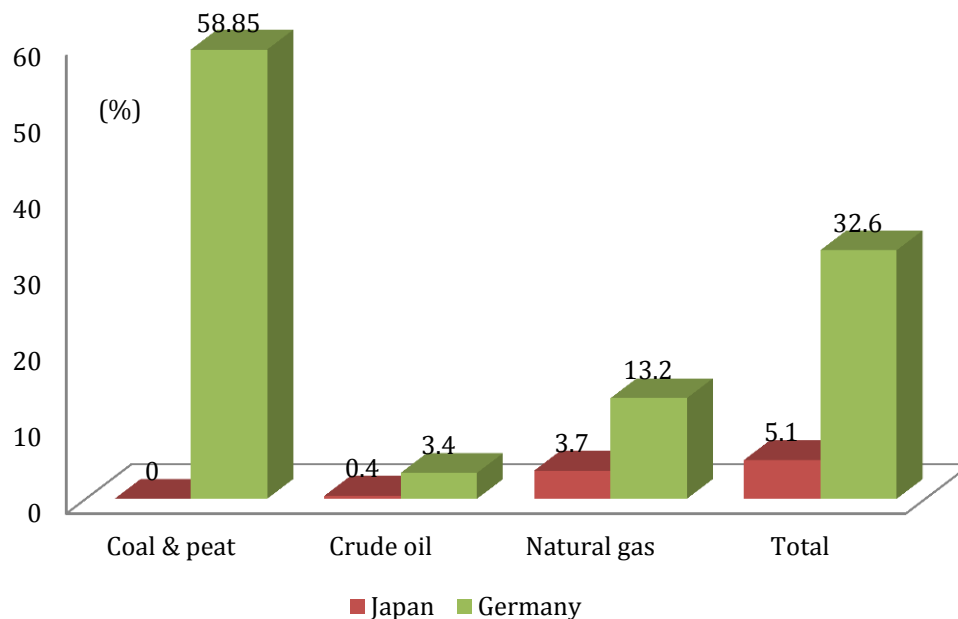


Figure 5 Energy self-sufficiency levels for Japan and Germany in 2010

Source: Energy Balances of OECD Countries 2012, published by the IEA

As can be seen from Figure 3 (which compares the proportions of different energy sources used for electrical power generation), Germany generates 44% of its electricity using coal and peat, a resource in which it enjoys a high level of self-sufficiency, and 22.6% of its electricity using nuclear power. (This figure is 3.4% below Japan, where nuclear power is used to generate 26.0% of the nation's electricity.) As mentioned above, however, Germany also generates a considerable proportion of its electricity (14.8%) using renewable energy sources such as solar, wind, and geothermal power. In addition, Germany is an exporter of electricity, and, according to the German Association of Energy and Water Industries (BDEW), the nation has enjoyed a continuous export surplus in electricity since around 2003 (that is, its exports have exceeded its imports).

The German federal government has sought to break with nuclear power generation and increase the adoption of renewable energy, with the cabinet agreeing in June 2011 on a package of ten new energy bills, including revisions to the basic law on nuclear power that prescribe breaking with nuclear power generation, and a revised renewable-energy law that prescribes the promotion of renewable energy. Although this course correction (to break with nuclear power) appeared to represent an abrupt switch in policy, it was, in fact, a resolute decision by Chancellor Merkel, made after thorough preparation.

After the accident at the Fukushima nuclear power plant, Chancellor Merkel set up an ethics committee—under her personal leadership—on the safe supply of energy. In May 2011, this committee published a report titled “Germany’s energy transition—A collective project for the future,” which estimated that Germany would be able to maintain its capacity for stable power generation even if it were to renounce nuclear power generation permanently. (Germany’s nuclear power facilities had been taken offline from the national power network following the accident at Fukushima.) Out of a stable supply of 90 gigawatts (GW) of electrical power that was available in Germany in

2010, 8.5 GW had been produced using now-suspended nuclear power generation. Subtracting this would still guarantee sufficient capacity to generate a stable power supply of 81.5 GW—more than the 80 GW that represent peak demand in Germany. In addition, although 3 GW of fossil-fuel power generation was to be phased out and taken off the network by 2013 due to obsolescence, a further 11 GW in new fossil-fuel power generation was scheduled to be added. Hence, it was forecast that a stable power generation capacity of 89.5 GW would be ensured.

An energy policy based on stronger international competitiveness

On the basis of a common EU energy policy, Germany has endeavored to diversify its sources of energy in order to ensure a stable energy supply, and to adopt renewable energy as a countermeasure to combat global warming. As a result of Germany's realistic approach and the steady manner in which it has addressed this issue over many years, the nation has been able to generate increasing volumes of electrical power using solar, wind, and biomass power as well as natural gas. By virtue of this process, it has reduced its reliance on nuclear power generation.

Despite the fact that the nation enjoys a high level of primary-energy self-sufficiency, Germany is addressing the issue of ensuring a stable energy supply in a practical fashion and remains aware of the risks that exist. Japan will probably need to squarely acknowledge its lack of natural resources and tackle maintaining and strengthening its industrial competitiveness in an international business climate that is becoming ever more rigorous. To this end, Japan requires a strategic medium- and long-term energy policy based on the construction of realistic mechanisms that are geared towards ensuring safer nuclear power generation, procuring energy at lower cost, and diversifying the nation's energy sources (to include renewable energy).

¹ The 27 member states of the EU are: Belgium, Germany, France, Italy, Luxembourg, Netherlands, Denmark, Ireland, United Kingdom, Greece, Portugal, Spain, Austria, Finland, Sweden, Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia, Slovenia, Bulgaria, and Romania.