Green growth policies: Germany

Abstract

Germany is a pioneer in green growth policies. The country was one of the first to cut greenhouse gas emissions: in 2009, it decreased CO_2 emission by 23 percent relative to 1990 levels; energy consumption from renewables shot up fivefold from 1990 to 2010; and, the country has by far the largest solar energy capacity in the world. Germany shapes the debate on sustainable growth in Europe and will be at the heart of any serious multilateral effort to address environmental issues: the country's response to the recent disaster at Japan's Fukushima nuclear reaction was to begin phasing out all nuclear power in Germany. The country leveraged upon green technology to promote job creation and economic growth with the aim of energy policy being to contribute to exports and value added as well as sustainable living. How has Germany done this and how can other countries follow? First, the political economy of energy and environmental sustainability has been favorable. The focus on environmental concerns and sustainable energy began early, during the late 1960s, when green policy was less controversial and politicized and gained momentum after reunification with East Germany when the discussion of the need to shut down polluting factories in the East became prominent. The electoral successes of the country's environmental party—Die Grünen—reflect the public's demand for more green policy and serves to keep the discussion on environmental issues in the policy mix in a way seen in few other countries. Second, the government directly encourages investment in renewable energy sources: regulators created a fixed feed-in tariff that forces utilities to purchase renewable energy at higher, fixed rates from independent sources. These incentives facilitated the development of a renewable energy industry. What others can learn from the German example? Germany shows that policymakers, businesses, and consumers can view environmental policies as a way to facilitate economic growth rather than a cost that slows economic development.

Germany has become a European pioneer in green growth policies. Together with Denmark and Sweden, it shapes the debate on sustainable growth in Europe. This commitment to green growth proved to be beneficial for the economy as well: according to the German government, employment in the renewable energy sector increased in 2010 by 129 percent in comparison to 2004, amounting to 367,400 jobs (BMU 2011a). This note tries to investigate how Germany married economic success with environmental policies.

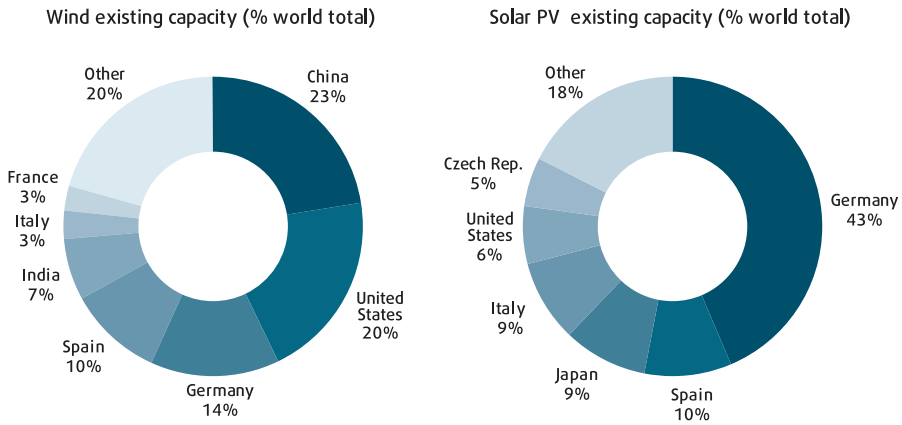
German accomplishments

In 2009 Germany was able to decrease CO^2 emissions per capita by around 23 percent in comparison to 1990s levels.[1] At the same time, the country increased total final energy consumption from renewable sources fivefold in just twenty years (from 1.9 percent in 1990 to 10.9 percent in 2010).[2] Currently renewable energy sources account for a tenth of total final energy consumption, mostly biomass (7.7 percent), wind (1.5 percent), and hydropower (0.8 percent). Germany has 44 percent of the world's existing solar photovoltaic (PV) capacity and the third biggest wind capacity in the world, after China and the US (figure 83).

Going green

There are several reasons why Germany became European leader in green growth.

Figure 83: Solar Photovoltaic (PV) existing capacity in 2010 (percentage of world total) and wind existing capacity in 2010 (percentage of world total)



Source: REN21 (2011).

First, Germany implemented environmental legislation relatively early. Since 1969, policymakers in West Germany focused on environmental issues. The oil crisis in the 1970s and subsequent public protests only reinforced these efforts. In 1971, the government put forward its first environmental program.[3] In 1974, the Federal Environment Agency was set up in Berlin. In search of alternatives to fossil fuels, the nuclear program was expanded. Weidner (1995) indicates that the first environmental efforts were a result of the leadership and will of a few individuals rather than pressure from the society or an environmental disaster. According to the author, such a situation had certain advantages: because the environmental legislation was not yet controversial, policymakers were able to set quite ambitious targets.[4]

The country's commitment to sustainable growth was reinforced in the process of unification with East Germany, when most polluting factories in the east were shut down (Schreurs 2009). With increased global awareness, the German regulations in cooperation with the European Union addressed more and more environmental issues. While under Kyoto, the EU committed to 8 percent green house gases emissions reductions by 2008-12 in comparison to 1990 levels, Germany committed to 21 percent. The subsequent legislation followed suit. The ecological tax reform introduced in 1999 and amended in 2003 increased taxes on energy consumption and the surplus was channeled to reduce employment costs. Knigge and Görlach (2005) estimate that the ecological tax helped Germany reduce emissions, boosted employment, and contributed to greater technological innovation.

Second, the government encouraged investment in renewable energy sources. Regulators created a fixed feed-in tariff that forces utilities to purchase renewable energy at higher, fixed rates from independent providers.[5] These incentives facilitated the development of a renewable energy industry. In 2010, Germany was the world's largest investor in new capacity in PV solar and biodiesel production, the second biggest in solar hot water/heat (after China), and fifth biggest for wind power (after China, India, Spain, and the U.S.).[6]

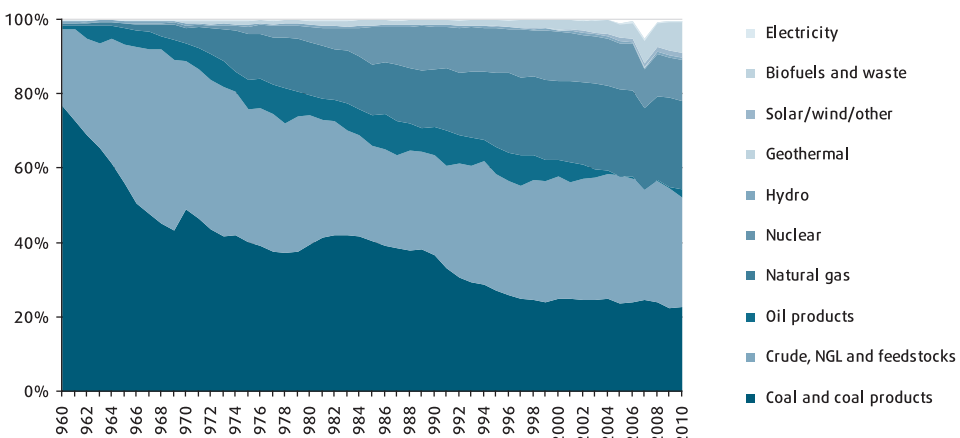
Third, the German public became more and more aware of environmental issues. The environmental party - Die Grünen – received less than 2 percent of the votes during their first political campaign

in 1980s and now holds 68 seats in Bundestag and has around 58,000 members. Although in the beginning Die Grünen focused mostly on an anti-nuclear agenda, they soon encompassed other environmental issues important for the German public such as industrial pollution and acid rain. Public awareness matters not only in the political sense, because environmentally conscious consumers create a demand for environmentally friendly products. It also forces businesses to use cleaner technologies and comply with environmental standards. At the same time, businesses in the area of green growth lobby for even more ambitious goals in terms of environmental policies.

The policy and cost-benefit analysis

Germany's green agenda helped to internalize the cost of pollution and boost the renewable energy industry. The recent disaster at Japan's Fukushima nuclear plant speeded up a nuclear phase-out in Germany. The planned phase-out is in fact so rapid that the International Energy Agency urged Germany to assess the implications of a quicker phase-out in terms of supply security, carbon emissions, and efficiency (IEA 2007). Also, the costs of subsidizing renewable energy are substantial. According to RIW (2009), subsidizing PV modules generates a total net cost of $73.2 billion for modules installed between 2000 and 2010. Partly as a result, the share of renewables in total primary energy output grew substantially in the past decade, though its role is still limited (figure 84). A greater share of energy from renewable sources also raises the question of electric grid management.

Figure 84: Total primary energy supply by source (percentage of total), 1960-2010



Source: IEA (2010).

Through investment and government support, Germany was able to diversify its energy base and reduce the greenhouse gas (GHS) emissions by 23 percent in comparison to 1990 levels. At the same time, it sees green growth technology as major future export product and sets ambitious targets for the future.[7] The country plans to cut GHG emissions by 80 percent by 2050, in comparison to 1990 levels. Renewable sources are set to deliver 60 percent of total energy consumption (SBESB 2011). What others can learn from the German example? Germany shows that policymakers, businesses, and consumers can view environmental policies as a way to facilitate economic growth.

Sources

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Notes

1 Estimates based on data from International Energy Agency.

2 German Federal Ministry for the Environment, Nature Conservation, and Nuclear Safety.

3 The same year the responsibility of addressing the pollution was transferred from the Ministry of Health to the Ministry of the Interior.

4 It needs to be underlined that German environmental policies are imbedded in the European Union's ambitious environmental agenda. The European Economic Community implemented its first environmental regulations between 1960s and 1980s. See Fu (2008).

5 The rates are lowered once the technology becomes cheaper.

6 See: REN21 2011.

7 Germany is an important exporter of green technologies, yet it is facing increasing competition. China already has the biggest renewable capacity (including hydropower capacity) worldwide and it continues to invest more (REN21 2011).