

# COUNTRIES USING WIND POWER

Canada has some leg-work to do in developing its renewable energy sector, but perhaps countries which have successfully implemented wind power, such as Denmark, Germany and Portugal, could serve as models.

Denmark is the place the world has been looking to for wind power inspiration. This Scandinavian country in northern Europe has a wind power industry that meets about 20% of the country's energy demands, which is more than any other country in the world (Land, 2010). It is home to Horn Revs 2, the world's largest offshore windfarm, which has about 91 turbines at 2.3 MW each, allowing them to power around 200 000 households (CNN Tech, 2010). Denmark quickly became largely energy independent after the 1970's OPEC embargo on middle-eastern oil. While countries like the United States discontinued incentives for the development of renewable energy in the 1980s, Denmark did not. At this time, the country began offering a 30% subsidy for the construction of wind projects (Britannica, 2008). Most of the turbines in Denmark exist in clusters of smaller-sized turbines owned by farmers, communities and households. In 2008, 100 000 households, or 5% of the population, owned at least one share in a nearby turbine project. The most famous community wind farm is Middelgrunden: it is comprised of 20 turbines, half of which are owned by Middelgrunden Wind Turbine Cooperative and the other half of which are owned by the electric company. This farm alone can power 40 000 households in Denmark (Britannica, 2008). Here, clearly, government subsidies allow the wind power industry to prosper, as well as a carbon tax and individual investments (CNN Tech, 2010). Independent purchasers, such as on the island of Samsø, have been investing in turbines to supply their own heating and electricity. Turbines have been easy to upkeep and save the purchaser thousands of dollars a year (CNN Tech, 2010).

However, the success of the wind business here is highly dependent on international politics. At the moment, the Danish company Vestas is the world's largest supplier of wind turbines (CNN Tech, 2010). Onshore sites are even running out, so developers are turning to offshore technologies (Ewea, 2010).

Another country that has had success with wind power is Germany. Situated in central Europe, Germany had over 20 300 wind turbines installed with a total capacity of 23 903 MW at the end of 2008; this supplies about 7.5% of its electricity needs. The wind energy sector has created over 100 000 jobs (German WindEnergy Association, 2010). Wind energy has been able to spread here partly due to the Renewable Energy Sources Act (EEG is the German acronym), which has set wind power to meet 12.5% of energy needs by 2010 (Federal Ministry for the Environment, Nature Conservation and Nuclear Safety, 2004). The Feed-In Law obliges grid operators to buy renewable energies, which are given priority for connection to the grid, within their supply area. Before this law was passed in 1991, renewable energy generators – under which fall wind power generators – were denied access the grid and had difficulties connecting to it. Now, grid operators must also work to extend the grid, and those who are unable to feed in may file damage claims (German WindEnergy Association, 2010). Government funding and anti-nuclear movements have also helped the wind energy sector grow (EcoWorld, 2010). As in Denmark, wind turbines are owned by communities and households; about 200 000 people own shares in turbine projects. One third of Germany's wind capacity comes from associations of local landowners and residents and \$4.8 billion in individual investments have installed 4000 megawatts of capacity (Britannica, 2010).

Let us now consider Portugal. In 2008, it had Europe's largest onshore windfarm, and by the end of 2009, wind energy produced 3535 MW and supplied 15% of its total energy demand. Smaller windfarms, providing about 1% of national energy needs, produce enough energy for over 300 000 homes (Tremlett, 2008). Situated in the southwest, is one of the sunniest spots in Europe, and the coastline provides it with a lot of wind. Portugal is already exceeding its renewable targets for 2010 and expects to meet 31% of its energy needs by 2020 (Environmental Leader, 2008). Again, government funding in Portugal fuels the wind energy sector and subsidizes up to 40% of new renewable projects (Tremlett, 2008).

Though Canada is making progress towards incorporating more renewable energy into the grid, perhaps Denmark, Germany and Portugal could set examples for Canada. Other countries that have successful and growing wind power industries are France, the US, Spain, Italy, and India. Canada, of course, has different terrain and capacity for wind energy output, but there is potential for harnessing

wind energy in the plains, mountains and windy coastlines. Problems that wind companies face are those related to zoning, finance, connection to the grid and getting paid enough once the connection has been made (Britannica, 2008). However, a shift would be worth it; Canada's area is big and pro-wind policies could make big differences. Small-scale community-owned wind farms have made wind power feasible in the countries discussed and maybe Canada could make use of them in some areas. Although some wind power criticisms might be legitimate, the potential for this renewable energy source in Canada is undeniably great.

Source : <http://www.sassweb.ca/3bb3/wind/countries-using-wind-power>