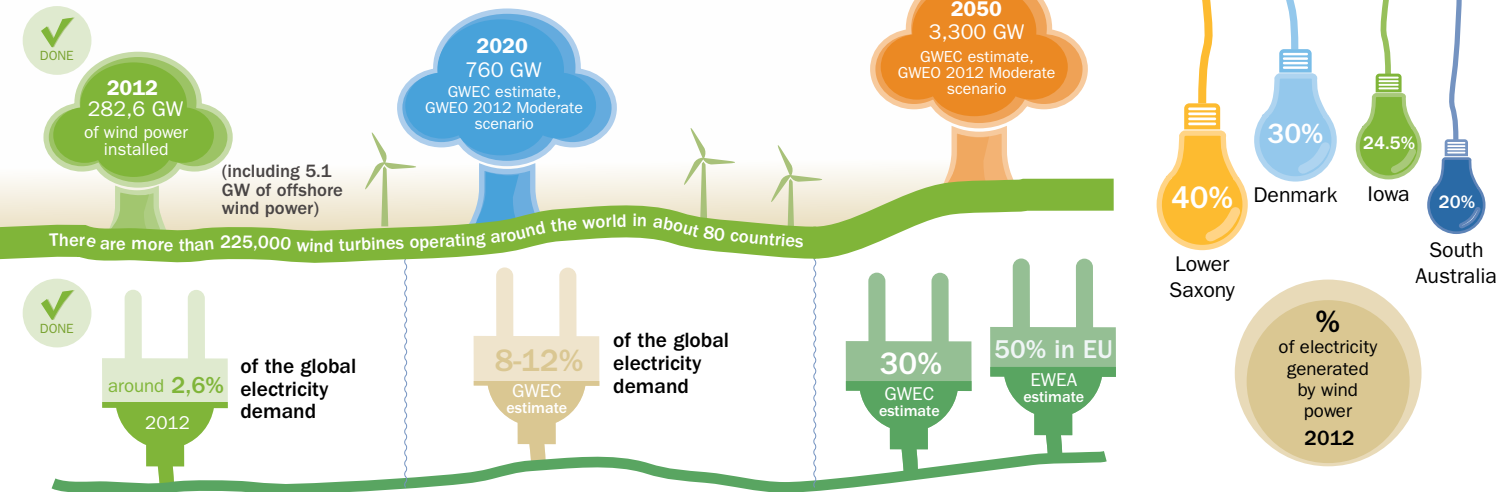
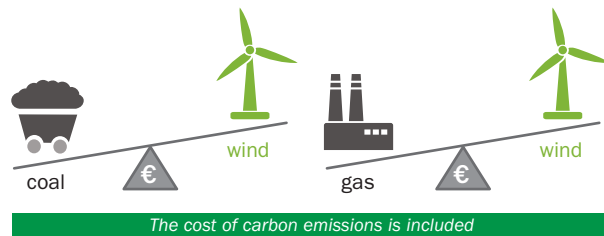


GLOBAL WIND ENERGY STATISTICS AND TARGETS



WIND IS NOW CHEAPER THAN FOSSIL FUELS IN AUSTRALIA

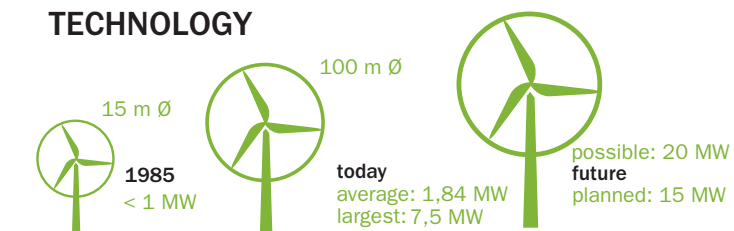
A new wind farm in Australia can supply electricity at a cost of A\$80 (€ 64) per MWh, compared with A\$143 (€ 114) a MWh from a new coal-fired power plant or A\$116 (€ 92) from a new station powered by natural gas when the cost of carbon emissions is included.



Bloomberg New Energy Finance (BNEF) report

Fossil fuels are receiving six times the level of subsidies of renewable energy, according to the International Energy Agency, World Energy Outlook 2012.

TECHNOLOGY

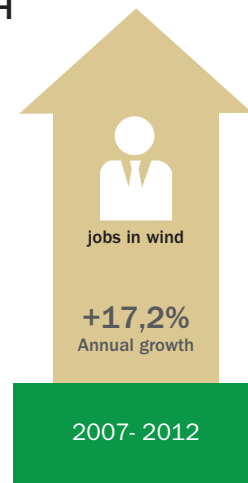


282,6 GW OF WIND POWER CAN PRODUCE THE SAME AMOUNT OF ELECTRICITY OVER A YEAR AS:

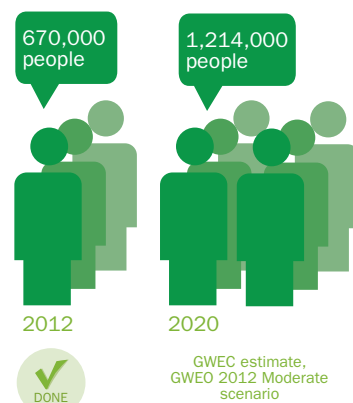
- 175 coal power plants, or
- 110 nuclear power plants, or
- 147 gas power plants

JOBS AND GREEN GROWTH

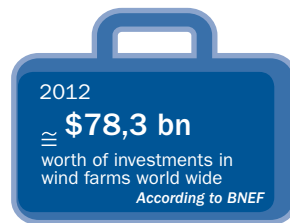
- Wind energy contributed **\$78,3 billion to the global economy in 2012**. The macro-economic effects of the development of the wind power sector as well as the renewable energy sector as a whole is increasingly a factor in political decision making about our future energy choices.



People employed globally in wind energy



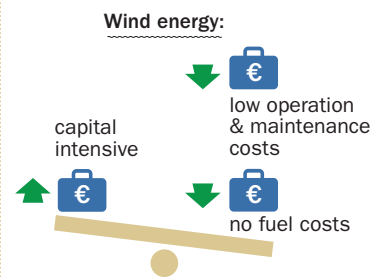
FINANCE



Investors include power producers, international finance institutions, private equity and pension funds.

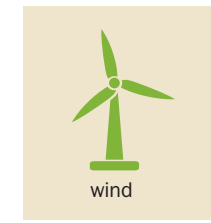
Policy uncertainty and the instability of national support mechanisms for renewables increase the perception of risk and make financing more expensive.

Offshore wind is a developing sector: relatively new with new entrants, and cost reductions expected through technology innovation.



COSTS, ENERGY SUBSIDIES AND ELECTRICITY PRICES

Wind power is becoming competitive with fossil fuels. Taking into account the fuel and CO₂ costs, wind energy costs less than the energy generated by coal or gas.

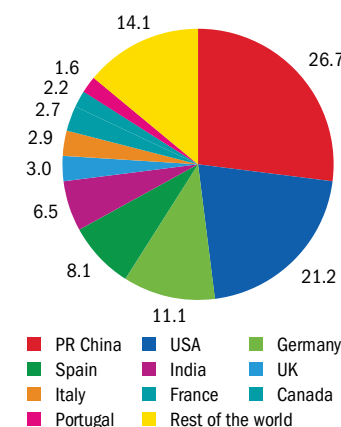


In 2011 avoided fossil fuel costs from wind power production was **€35 billion**. That is estimated to grow to **€279,5 billion by 2020** and to **€1020 billion by 2020**.

Wind power can drive down wholesale electricity prices. This is already happening, according to credit agency Moody's and financial analysts UBS.

Wind power is already directly competitive with conventional sources in many markets around the world, such as Mexico, Brazil, New Zealand, South Africa, and parts of China and the US.

Top 10 Cumulative Capacity in % in 2012



WORLD'S ELECTRICITY SUPPLY

Grid operators can integrate large amounts of wind power:

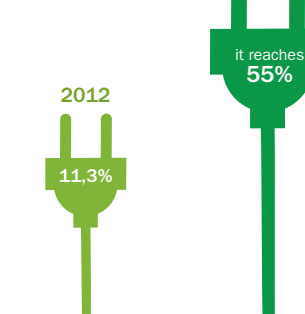
electricity demand met by wind power IN DENMARK



by 2020 the government aims for



electricity demand met by wind power IN COLORADO



The power grid needs to be reinforced and better interconnected to improve security of supply – regardless of the source of energy – and in order to improve competition in the electricity market, which would bring down prices.

For an efficient integration of wind and other renewables, intraday and balancing power markets are needed, with demand-side management.

"No TRANSITION without TRANSMISSION!"

Klaus Rave, President GWEC

WIND ENERGY & NATURE

Birdlife, WWF, Greenpeace, Friends of the Earth and others **support wind energy**. Birdlife recently stated that **climate change** was the single **largest threat to birds** and wind and renewables were a **clear solution to climate change**.

The potential environmental effects of a wind farm are assessed before construction is allowed to start.



- NO** fuel
- NO** greenhouse gases
- NO** air pollution
- NO** toxic substances
- NO** water pollution
- MINIMAL** water use

"At IKEA, we want to take a leading role in the transition to a low-carbon society by only using 100 percent renewable energy."

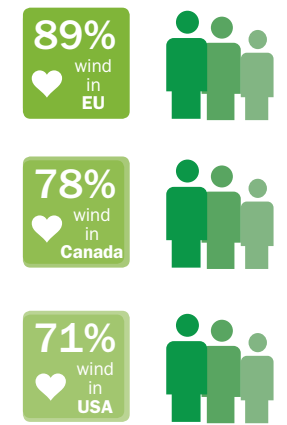
Steve Howard, Chief Sustainability Officer, IKEA Group, June 2012

"At Google, we strive to ensure that our company is 100% powered by renewable energy such as wind and solar. We believe that by feeding the web with renewable energies we create a better future for all."

Google green

PUBLIC OPINION

Support for wind energy



- The growing participation in the annual Global Wind Day (15 June) shows **support for and interest in wind energy is increasing**. www.globalwindday.org
- The Global Consumer Wind Study 2012 by Vestas and TNS Gallup shows that **85% of consumers surveyed want more renewable energy**.

Climate change poses the single greatest long-term threat to birds and other wildlife. Wind power is the most advanced renewable technology, available at a large scale, over this time period.

HEALTH



Noise levels from turbines meet **World Health Organisation (WHO)** recommendations for residential areas.

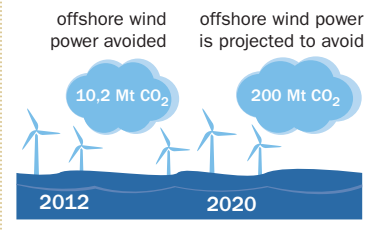
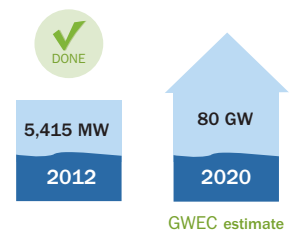
There is **no evidence** "that the audible or sub-audible sounds [including infrasound] emitted by wind turbines have any **direct adverse physiological effects**", concluded a study, 'Wind Turbine Sound and Health Effects', conducted in 2009 by a panel of medical professionals from the US, Canada, Denmark, and UK.

The most audible **sound** of wind turbines is a **light swishing** - and usually the wind itself is louder.

Wind energy emits **no particles**, unlike fossil fuels, which severely affect human health.

OFFSHORE

offshore wind energy capacity



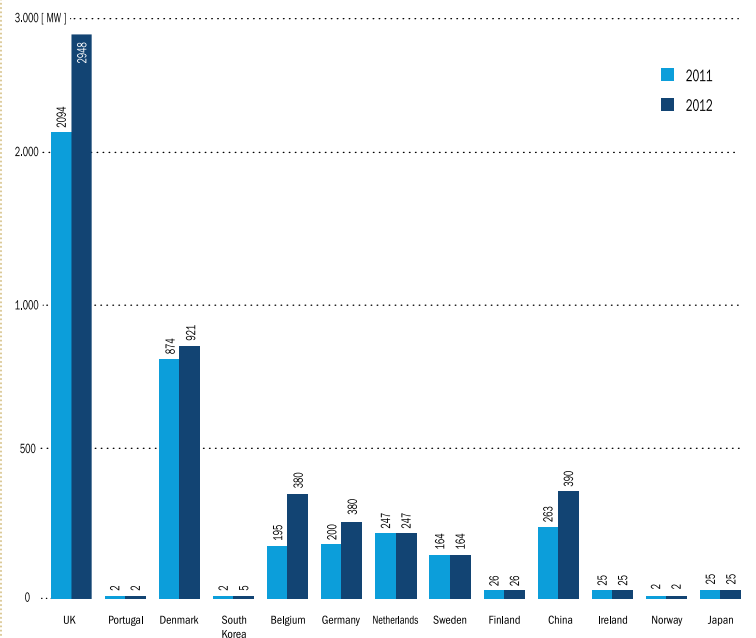
Outside of Europe, China leads offshore wind development with 389,6 MW of which 261 MW are intertidal projects. In 2012, China maintained its 3rd position in world's offshore wind development by installing 127 MW. Japan has four offshore wind projects (25,3 MW) of which one is a floating turbine structure and South Korea has 5 MW of offshore wind all located in Jeju Island.

Offshore represents around 2% of global annual wind energy installations.

By the end of 2012, there were 5,1 GW of installed offshore wind energy capacity worldwide. GWEC is expecting this to grow to 80 GW by 2020, which would meet approx.10% of global electricity demand. China has ambitious national targets of 5 GW by 2015 and 30 GW by 2020. Japan estimates 5-6 GW of offshore capacity could be reached by 2030 and South Korea has a target of 2 GW by 2030.

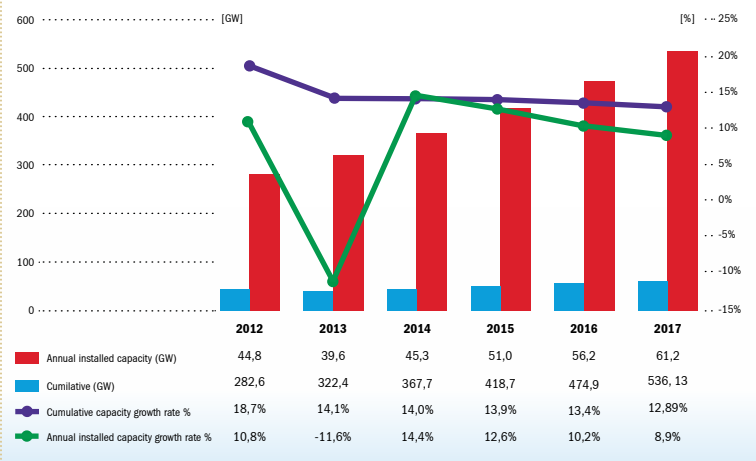
Offshore wind farms can provide regeneration areas for fish and other sea creatures because of reduced trawling activities and because the foundations act as an artificial reef, encouraging the creation of new habitats.

GLOBAL CUMULATIVE OFFSHORE INSTALLED CAPACITY



In 2012, Europe was the world's leader in offshore wind energy with more than 90% of the world's installed capacity, followed by China, Japan and South Korea.

MARKET FORECAST 2013 - 2017



Capacity (MW)

The ability to generate electricity is measured in watts. To describe the capacity of wind turbine or other power plants, the terms kilowatt (kW = 1,000 watts), megawatt (MW = 1 million watts), and gigawatt (GW = 1 billion watts) are most commonly used.

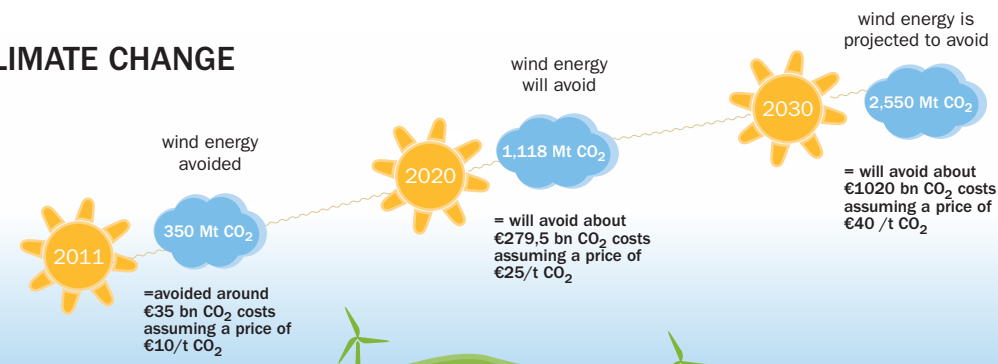
Electricity production (MWh)

Electricity production and consumption are measured in kilowatt (1,000 watts) hours per hour (kWh). One 50 watt light bulb left on for 20 hours consumes one kilowatt-hour of electricity.

Capacity factor

A modern wind turbine is available to produce electricity 80-98% of the time, but it generates different outputs depending on the wind speed. During one year, it will typically generate about 24% of the theoretical maximum output (41% offshore), which is the capacity factor (conventional power stations: 50-80%). More comparable with other sources of electricity is the overall efficiency, the relationship between the energy input (the wind) and the energy output (the electricity). The efficiency of a wind turbine has a theoretical limit of 59% (compared to coal with about 35% and gas with about 50%).

CLIMATE CHANGE



- For every kWh of wind energy used, approximately **696g of CO₂** will be avoided.
- Wind energy produces no greenhouse gas emissions during its operation. **A turbine will produce up to 80 times more energy** than is used to **build, install, operate, maintain and decommission it**.

