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

"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. The RSPB supports a significant growth in offshore and onshore wind power generation in the UK."

***Royal Society for the Protection of Birds** (RSPB)*

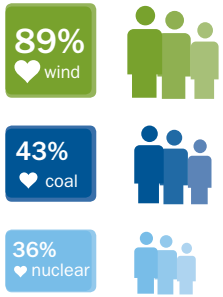
"At IKEA, we want to take a leading role in the transition to a low-carbon society by only using 100 percent renewable energy. By only using wind power in Sweden [..] we will not only be selfsufficient in electricity in Sweden, generating enough to supply all IKEA buildings and operations in the country, but it will give us opportunities to supply IKEA stores in other countries with wind power."

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

PUBLIC OPINION

Eurobarometer survey (2011)

EU citizens:



- 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.**

HEALTH

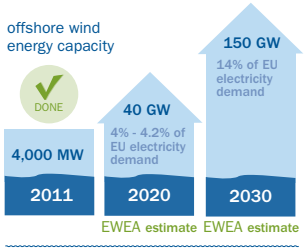
Noise levels from turbines meet **World Health Organisation** (WHO) recommendations for residential areas.

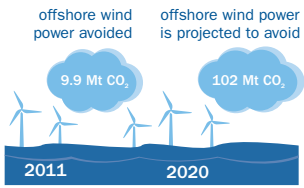
There is **no evidence** "that the audible or sub-audible sounds [including infrasound] emitted by wind turbines have **any direct adverse physiological effects**", concluded a study, 'Wind Turbine Sound and Health Effects', conducted in 2009 by a panel of medical professionals from the US, Canada, Denmark,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

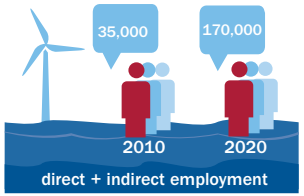
The most audible **sound** of wind turbines is a **light swishing** - and usually the wind itself is louder.

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

OFFSHORE

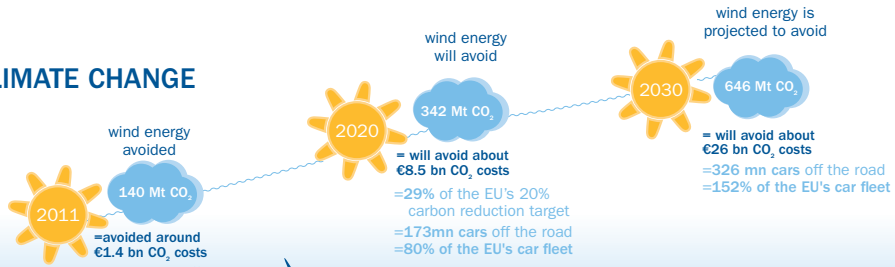






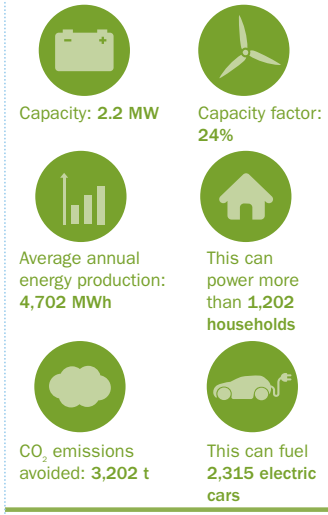
- In 2011, **Europe** was the **world's leader** in offshore wind energy with more than **90%** of the world's installed capacity.
- Offshore represents around **10% of EU annual wind energy installations.**
- EWEA estimates that approximately **a quarter of Europe's wind energy** could be produced offshore in 2020.
- In 2011 the **average size** of offshore wind turbines installed and grid connected reached **4 MW**, a 14.2% increase on 2010.
- 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.

CLIMATE CHANGE

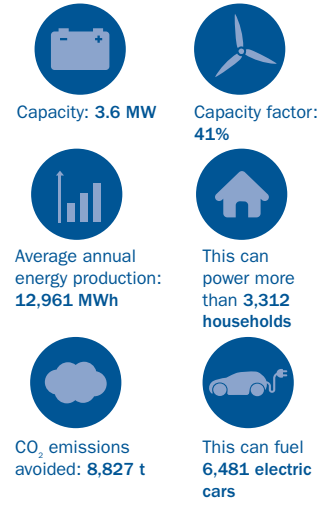


- For **every kWh of wind energy used,** approximately **696g of CO_2** will be **avoided.**
- Wind energy produces no greenhouse gas emissions during its operation. **A turbine** will **produce** up to **80 times more energy** than is used to **build, install, operate, maintain** and **decommission it.**

The average European **ONSHORE** wind turbine



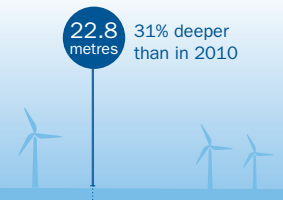
The average European **OFFSHORE** wind turbine



Annual investments in offshore wind farms are expected to increase

Average water depth of offshore wind farms

2011



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%).