

# A great future for offshore wind power

## Professor Claudia Kemfert talks about climate protection

**Unless countermeasures are taken, climate change could cause 800 billion euros of economic damage in the next 50 years, says Germany's leading environmental economist.**

**BARD Magazine:** Climate change has been a major topic in the media for some time now. You're researching the economic costs of the changes in climate that can be expected in the next few decades at the German Institute for Economic Research (DIW Berlin). Based on your findings, can you put a figure on these costs for Germany?

**Professor Claudia Kemfert:** A possible scenario is based on climate change costing Germany 800 billion euros in the next 50 years. This is equivalent to around 1.7 per cent of gross value added (GVA). This should not be regarded as a forecast, however, but as a possible scenario. It's not possible to make an accurate forecast for such long time periods. The scenario assumes that there have been no adaptation measures and no climate protection. These scenarios are intended to provide a recommended course of action for politicians so that more is done and we're better prepared for climate change. We need better littoral management, dyke construction, heat health warning systems and water management so that we'll be ready when extreme events occur.

**How big is the increase in global temperatures in this scenario?**

We assume a clear-cut rise in global surface temperature of 3.5 to 4 degrees centigrade. There is now no chance of limiting the rise to 2 degrees, because China and India are growing very rapidly and using more coal as

a result, causing greenhouse gas emissions.

**What will be the effects of this temperature rise in Germany?**

We'll experience extreme climate events in Germany too, extremely hot summers accompanied by droughts and forest fires. The resulting water shortages will lead to crop losses

and possibly power cuts owing to there being no water to cool fossil fuel power stations. However, we also expect extreme precipitation, leading to flooding that will damage property and infrastructure.

**Some politicians are questioning the nuclear phase-out in Germany. What is your position against the background of the climate debate?**

Germany has nuclear power stations that used to be highly subsidised. They will operate for as long as they meet safety standards. Why shouldn't they remain in operation?



### Our interviewee

**Professor Claudia Kemfert** has headed the Energy, Transportation and Environment Department at the German Institute for Economic Research (DIW Berlin) since April 2004. She also holds the chair in environmental economics at Berlin's Humboldt-Universität. Her research focuses on the economic evaluation of climate and energy policy strategies.

Claudia Kemfert is an adviser to José Manuel Barroso, President of the European Commission, as part of the High Level Group on Energy, an external expert for the World Bank and United Nations, and an official consultant to the Intergovernmental Panel on Climate Change (IPCC). Claudia Kemfert studied economics at the Universities of Bielefeld, Oldenburg and Stanford (PhD 1998).



It doesn't make economic sense. We all want cheap electricity. If we turn off nuclear power stations, it will presumably become more expensive. It may be politically desirable, but the question is how do we replace nuclear power? At present conventional coal- or gas-fired power stations are the alternative to nuclear power. Building more coal-fired power stations has a negative impact on our climate footprint, though, as low-CO2 coal-fired power stations are not yet a reality – and may never be. Using gas as an alternative increases our dependence on imports and gas prices are constantly rising. If we do away with both atomic energy and energy from coal, we will be switching off 80 per cent of Germany's power supply.

**So we can't get rid of nuclear and coal-fired power stations at the same time. Which begs the question, how quickly can renewable energy or energy-saving measures fill the gap?**

It's a question of time. I believe that renewable energies will play a major or even crucial role. By 2020 they will provide more than 20 per cent of our power. Maybe we could manage 25 or even 30 per cent.

**Is that realistic?**

Yes, 20 per cent is definite. The more so since the EU wants to expand renewable energies very vigorously too. The only question

is, even if we manage 30 per cent, where will the other 70 per cent of our power come from?

**What about all the various energy saving measures?**

Quite right. We urgently need to save more energy, but it won't happen quickly. Buildings and motor vehicles are the most efficient way of saving energy. Good building insulation requires investment and implementation timescales in excess of 10 years.

It will be at least 15 years before these measures are implemented. But even if we assume, very optimistically, that we'll manage to cut energy consumption by 10 per cent by 2020, we still need to ask where the remaining 60 per cent of our power will come from.

**According to your analysis, there's no way we can avoid using nuclear energy for longer than planned in the nuclear compromise of 2002?**

I can't see a realistic alternative at present. But nor can I see new nuclear power stations being built on a grand scale in Germany, unlike in the UK, France, Italy and Finland.

**What role will offshore wind power play in achieving the climate protection targets set by the German Government and the EU?**

**"I can't see an alternative to nuclear power at present"**

When we talk about expanding renewable energies to 30 or 50 per cent by 2050 in our climate scenarios, offshore wind power plays a crucial role. The important thing will be to expand the grid. Firstly to carry offshore wind energy to Southern Germany and secure the power supply. Secondly to develop grid connections between the countries of Europe. Not much has been invested,

with companies balking at such high investment without a return. The debate about selling the grids has not helped to stimulate the necessary investment, with companies putting the matter off time and again. Grid expansion, intelligent energy management, virtual power stations and storage facilities are important, however. This is not as important in the case of offshore wind energy, though, as wind intensities at sea are relatively easy to forecast and more constant than inland.

**That's the advantage of offshore technology.**

Of course. That's why there's so much investment in this area. And there's no debate about blighting the countryside either.

**Is it possible to put a figure on how much offshore wind energy will contribute to power generation in Germany in the future?**

That's a tough one. There are various scenarios. A considerable growth rate is possible at any rate. There's less potential for expansion in the case of other renewable energies, including geothermal energy, biomass, etc.

**What obstacles to the optimum promotion of offshore wind power do you see?**

In addition to the Infrastructure Acceleration Act, the Federal Ministry of Economics and Technology has initiated legislation that will further facilitate grid expansion. This should prevent all the opposition proceedings and blocking options. This in itself will help to speed up the expansion of offshore wind energy as much as possible. And the Renewable Energy Act is being retained, which is an important element in promoting wind power. It goes without saying that there will be regional imbalances when it comes to grid usage fees. In Northern Germany the energy suppliers will charge high grid usage fees because expansion will cost money of course. The costs will be passed on to consumers pro rata, however. The Renewable Energy Act offers sufficient planning reliability for the expansion of offshore wind energy in this respect. I foresee problems with grid expansion instead.

**Thank you for talking to us.**