

THE POWER OF WIND

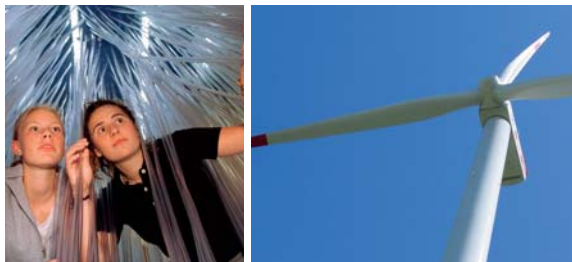
The energy of the future – an exhibition in the Klimahaus® Bremerhaven



Concept for a
WIND ENERGY
INFORMATION CENTER
in the Klimahaus®
Bremerhaven 8° Ost

__Task and aim

Wind power is a fascinating technology for the future. This study presents the concept for a “Wind energy information center” in **Bremerhaven**, which is to bring the fascination, importance and potential of wind energy, especially offshore technology, to life. With a whole host of exciting installations, easy-to-understand experiments and informative media stations, the information center will help grab visitors’ interest and increase their understanding and acceptance. It should produce a new generation of experts and provide long-term support for the dynamic development of wind energy as a whole.



Only if we get involved
we can truly understand.

What will the energy supply of the
future look like?

__Environmental communication and interactive exhibitions

How can we awake people’s interest in and develop their enthusiasm for a complex technological and environmental development such as wind energy?

Edutainment facilities such as science centers and interactive exhibitions have proven successful in communicating environmental issues. Science centers make learning fun and hands-on: visitors can use their initiative, get actively involved and explore with all their senses. Contents or topics are presented so that they “make sense”. This is achieved through interactive exhibits, 3D images, media stations, stories, pictures and information, all of which encourage the use of cognitive skills and take people on an emotional journey. Because only if we get involved can we truly understand.

__The offshore wind energy information center in the Klimahaus® Bremerhaven 8° Ost

The Klimahaus® Bremerhaven 8° Ost, which is to be one of Europe’s most innovative and spectacular edutainment facilities, is currently being constructed in the Old/New Harbor, an area of the city undergoing extensive redevelopment.

Thanks to its focus on the complex and highly topical subject of climate, its status as an attraction popular with visitors, the sound scientific knowledge it will provide and its clear educational objective, the Klimahaus® Bremerhaven will offer the **ideal environment for the offshore wind energy information center**. The Klimahaus®, with around **600,000 visitors expected per year**, will be a **unique tourist attraction in North Germany**.

The working title for the information center reflects the fascination and the emotional pull of wind energy, its relevance to the future and its close relationship to the Klimahaus®:



Klimahaus®
Bremerhaven

Perfect partners:
climate protection and
wind energy.





A tremendous challenge ...

Conveying the fascination of wind energy

Wind energy can inspire and fascinate in many different ways. The simplicity of the principle, the overwhelming environmental benefits, the technological genius and the rapid development over recent years are all awe-inspiring. But more than anything else, it's the sheer scale of the turbines that captivate people: parts that are too big to be transported by road, blade tips that tear through the air at 280 kilometers an hour, materials that are lighter than water but tougher than steel – the world of wind power is full of record-breaking and scarcely imaginable outstanding achievements.

The Power of Wind will transform this fascination into an experience. With films, interactive exhibits and experiments, games, media stations and real wind turbines on the roof of the Klimahaus®, a varied, exciting and informative tour through the various aspects of wind energy will be created.

A variety of thrilling experiences and easy-to-understand explanations will bring the bigger picture into view:

Wind power ...

- ... is a **fascinating technology**, full of challenges and technical innovations
- ... is **practical climate protection**, inexhaustible, renewable and efficient
- ... is **forward-looking**, creating jobs, skills and prospects
- ... is at home in **Bremerhaven**.

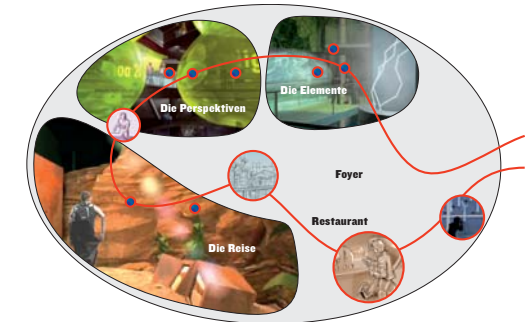
Overview

The Power of Wind comprises four **independent interactive areas** focusing on different themes relating to offshore wind energy in the Klimahaus® Bremerhaven. Information boards, which provide continuity through the written word, link the interactive areas and also build a bridge to the topic of wind energy in other exhibitions in the Klimahaus®. A website, flyers and materials for teachers and classes round off the Power of Wind program.

The interactive areas or modules will operate as independent units, housed in different areas of the Klimahaus® and clearly explained to visitors. When combined, with each other but also with other parts of the exhibition, an obvious common theme will become apparent, making the Klimahaus® a universal center



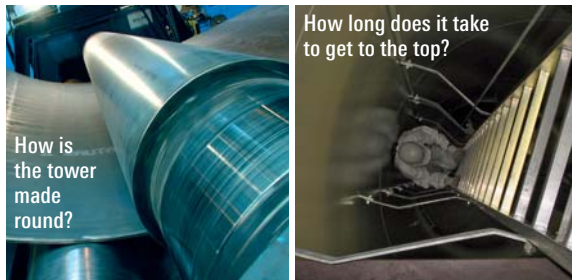
... that's worth every bit of effort.



THE POWER OF WIND: a common theme connecting four independent interactive areas with each other and with the other exhibitions in the Klimahaus® Bremerhaven.

for presenting wind power as a technology for the future.

The fascination of wind energy is the focus of the Power of Wind exhibition. Different aspects of this fascination are conveyed in each of the five modules: the impressive dimensions, the technical challenges and innovations, the prospects for environmental and climate protection and the importance of wind power for the region and the city of Bremerhaven.



Module	What happens?	What is it about?
Dimensionen des Windes (The dimensions of wind) approx. 100 m ²	Outside installation and 3D movie theater with additional wind, water and motion simulations in the entrance of the Klimahaus®	Joint display "of the whole story", experiencing the dimensions in 3D
Experimentierfeld Wind (Wind – a field for experimentation) approx. 280 m ²	Interactive exhibits and experiments in the special-exhibition-area next to the restaurant and multifunction room	Fascination of wind power technology
Zukunftsenergie (Energy of the future) approx. 60 m ²	PC stations and games, models, scenarios, graphics, films on the "Handlungsebene" (action level) of the Klimahaus® exhibition	Wind power – the energy of the future – as a highlight of renewable energies, climate protection, energy supply and energy management of the future
Hart am Wind (Close to the wind) approx. 100 m ²	Real rotors, experiments and views of Bremerhaven on the roof terrace	Bremerhaven as a wind power location – experience wind power live
Windlinie (Wind line) approx. 10–12 stations	Exhibits and stations in different parts of the exhibition in the Klimahaus® – clearly signposted	Wind and weather, Bremerhaven and the coastal region as a wind location, CO ₂ and the climate

Examples:

“Dimensionen des Windes” (The dimensions of wind): The “4D” movie theater

The 4D showing of “Dimensionen des Windes” (The dimensions of wind) in the entrance of the Klimahaus® is an absolute **highlight for visitors**: they sit in moving seats and watch a breathtaking movie in 3D and experience exactly what makes wind power so fascinating: the view up the mast and from the nacelle over the city. Huge cranes and dizzying maneuvers, parts weighing tons and dynamic elegance. Wind and spray effects turn the show into a unique journey through the world of wind energy.

„Experimentierfeld Wind“ (Wind – a field for experimentation): “Hollow or solid – what is the most hard-wearing?”



“Statistics and material” experiments: Different bodies and materials can be tested for flexural and torsional strength: circular tube, cylinder, rectangular tube and solid square bar.

„Experimentierfeld Wind“ (Wind – a field for experimentation): “Unsteady construction – what can a floating crane do?”

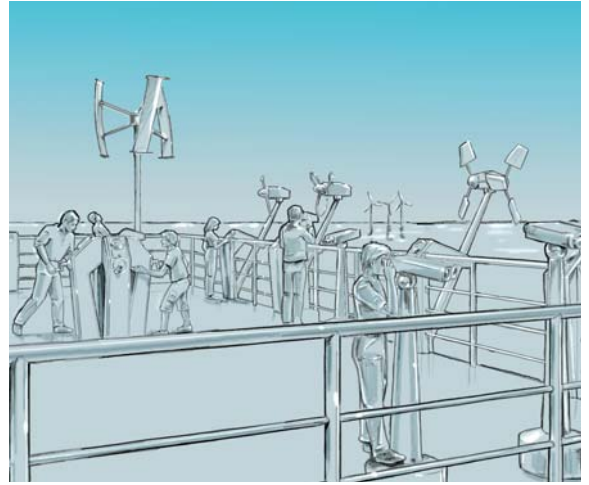
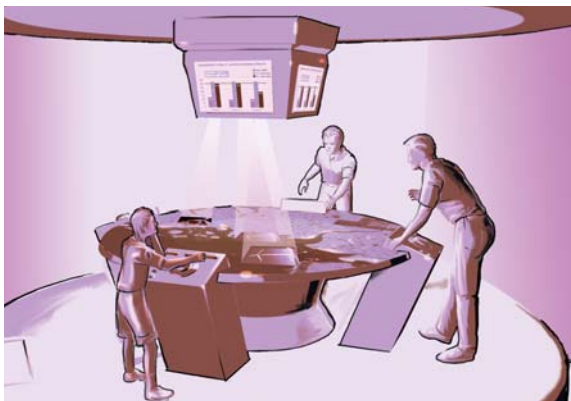


“The offshore challenge” experiment/game. Several visitors stand on an unsteady, supported platform and assemble parts of a wind power unit.

„Zukunftsenergie“ (The energy of the future): “Scenarios”

Media installation on the “Future prospects of wind energy”.

A large interactive model landscape shows North Germany. Several visitors can call up different scenarios simultaneously, which are then projected onto the landscape. How was wind power generated in 1999 or 2002? How might it be generated in 2015 or 2020? How much wind-generated electricity is currently produced? How much could be produced at best?



“Hart am Wind” (Close to the wind): “Real wind”

Bremerhaven presents itself as a wind power location on the roof terrace of the Klimahaus®. Real rotors, experiments with real wind and views of real plants for generating renewable energy show what really can be done and what has already been accomplished.

“Windlinie” (Wind line):

References and connections

A rotor blade with pictures and texts serves as a connecting element for all stations and experiments of the Power of Wind exhibition, and conveys content, provides explanations and answers questions. Also in other parts of the Klimahaus® exhibition, in independent items on wind, weather, CO₂ or the climate, references to wind energy will be made through the presence of these rotors, thus creating awareness of the Power of Wind throughout the entire Klimahaus®.



Der Senator für Bau, Umwelt und Verkehr  Freie Hansestadt Bremen

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