

## Basic Information

### The Road to the Welios<sup>®</sup> - Science Center Wels

**How will we be able to provide for our constantly increasing energy needs in the future? Beginning in April 2011, Welios<sup>®</sup> will take a fascinating, fun approach to showing how we can do it! We'll explain how geothermal energy works and why the incandescent light bulb is a thing of the past. Austria's largest science center lets you experience the world of energy right up close. Throughout 3,000 m<sup>2</sup> of exhibition space, visitors discover the amazing potential of renewable energy. The opening promises to be Austria's Edutainment Highlight of the Year.**

### Idea and History

Austria's first science center will thus be confronting the issue that is the key to humankind's future. This is, above all, thanks to the tireless efforts of a highly committed group of industrialists, political leaders and private citizens from Wels and Linz. Almost 20 years ago, the idea of setting up just such a hands-on facility in Upper Austria was born among members of the Federation of Upper Austrian Industry, and the science center concept was presented to the province's governor. It wasn't long before this inchoate plan began to assume more concrete dimensions among various circles in the City of Wels. The first creative ideas for an "Energyland" initiative were supported by Erich Rondonell and Johann Grassegger of E-Werk Wels, Kurt Leeb of Mea Solar, Gerhard Zettler (then with Wels Strom), Wels Mayor Peter Koits and Deputy Mayor Hermann Wimmer. Leo Ludick got on board. Their ideas brought forth more detailed conceptions about the Science Center's content: exhibits and experiments having to do with renewable energy that would

- Reinforce a sensitive way of dealing with energy,
- Get locals enthused about energy from the region,

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- Demonstrate that environmental and technical careers have great future promise in the Province of Upper Austria,
- Make institutions offering scientific and technical training more attractive, and finally
- Endow Upper Austria with an interesting tourist attraction.

The core of this facility's mission is to do some high-energy motivational work among local residents on behalf of "their" Wels as an energy region, and to encourage people to be more sensitive about how they use energy resources. Thanks to the efforts of experienced, innovative edutainment expert and successful entrepreneur Carlo Petri, the support of the Province of Upper Austria and the City of Wels, as well as two banks as energetic investors, this idea has flourished and taken shape.

#### **Province of Upper Austria as Investor in the Future**

The Federation of Upper Austrian Industry and province Governor Josef Pühringer continue to stand behind this endeavor. Wels, a city that has made a name for itself worldwide in recent years as an Energy Capital (especially among experts in this field), is thus working closely together with the Province of Upper Austria to implement what is the flagship of a long-term, wide-ranging "Energyland" project. The international architectural competition to select the design of the facility was won by Linz-based *archinauten /dworschak + mühlbacher zt gmbh*, and construction work has been proceeding since October 2009.

#### **Concept in Harmony with the Kyoto Protocol**

The aim of the overall project has been, from its very inception, to take a variety of different approaches to staging substantive encounters with issues of extraordinary importance: renewable energy and energy efficiency. This is fully in accord with the objectives of the European Union, the Kyoto Protocol and the Republic of Austria: to substantially increase the market share of renewable forms of energy, to create new jobs in this sector, and to reduce CO<sub>2</sub> emissions. Indeed, Austria is in the vanguard of this effort. Thanks to the advantages of the Alpine Republic's topography that enable it to cover 50-60% of its energy needs through hydroelectric power, Austria will significantly surpass the 20/20/20 formula set up as a goal by the EU (reduce CO<sub>2</sub> emissions by 20% and derive at least 20% of all energy used from renewable sources by the year 2020). In order to effectively reach out to the general public, to make people cognizant of these aims and to raise consciousness for how crucial

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they are, the Energybus, a miniature science center on wheels, has been making the rounds for the last few years. Its itinerary includes schools, trade shows and regional events.

### **Spotlight on a Thematic Mix of Renewable Energy**

Designing basic approaches to this concept, subdividing the topics, integrating individual exhibits, taking into account unique regional features and doing justice to them—all these issues have been elaborated on at great length with local experts at institutions of higher learning, R&D facilities and industrial firms (Leo Ludick and Erich Steinbauer of the University of Linz; Rudolf Kraft of the Wels Campus of the Upper Austria University of Applied Sciences; Günther Vormayr and Norbert Rainer of Klimabündnis; Christoph Panhuber of Fronius International). The outcome has been an overall concept that manifests its uniqueness and innovativeness in its thematic mix, the way this content is portrayed and communicated, as well as the language used to do so. This is what sets Welios<sup>®</sup> apart from other science centers.

### **Getting Across Content as an Experimental Experience**

Beginning in April 2011, an approximately 3,000-m<sup>2</sup> exhibition domain will provide a spacious setting in which to get across scientific material in a way that's vivid, fun and, above all, experience-oriented. In their encounters with content, visitors can access various modes of mediation as well as varying levels of information—from the basics to detailed explanations—depending on their respective background and interests. The entire exhibition space is conceived in a very imaginative way that is conducive to experimentation, exploration and hands-on experience. In this spirit, Austria's largest science center and the world's first to focus exclusively on this thematic complex features 150 exhibits with lots of cranks to turn, buttons to push and knobs to twirl.

### **The Origins of the Science Center**

The Science Center idea was born over 40 years ago. The Exploratorium in San Francisco developed the first hands-on exhibits offering visitors an interesting, playful approach to the natural sciences and thus to material often perceived to be dry-as-dust. Since then, this mode of imparting knowledge is being utilized worldwide in museums and specially designed science centers. The mission:

- Getting across that the natural sciences can be lots of fun,

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- Staging an educational experience involving all the senses,
- Taking a learning-by-doing approach, and
- Dispensing with all the moralizing and pressure to perform.

### **Austria's First “Real” Science Center**

Austrian museums and exhibitions have significantly enhanced their presentations in recent years by integrating individual interactive installations or by adding on completely new interactive wings. But now, for the first time, Austria has a science center on a dimension corresponding to the extensiveness of this field. The entire Welios<sup>®</sup> has been conceived as a setting for experimentation, interaction and hands-on experience. It gets across scientific content in a way that’s fun and interesting.

### **The Permanent Exhibition**

#### **Welios<sup>®</sup> - A House Full of Energy**

Approximately 3,000 m<sup>2</sup> of exhibition space provide a spacious setting in which to get across the story of renewable energy in a way that’s vivid, fun and, above all, experience-oriented. In their encounters with content, visitors can access various modes of mediation as well as varying levels of information—from the basics to detailed explanations—depending on their respective background and interests. The entire exhibition space has been conceived to inspire the imagination. From the Lobby, visitors proceed up an interestingly designed staircase to get to a space in which the imagination has been given free rein—the Energy Farm on the 2<sup>nd</sup> Upper Level. The permanent exhibition extends throughout this floor as well as the 3<sup>rd</sup> Upper Level of the Welios<sup>®</sup>.

#### **Individual Living Spaces Let You Directly Experience Various Energy-related Themes**

Explore the various living spaces inside the farmhouse and the area surrounding it including a forest, wetlands, a workshop and lots of other interesting premises and domains. You are cordially invited to get active and try out all you see in this amazing setup—there are cranks to turn, buttons to push and knobs to twirl. Sometimes you even have to bring your whole body into play to experience how

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energy can be generated from water or biomass. A very diverse array of experimental exhibits playfully leads visitors to an understanding of the facts & circumstances of renewable energy.

### **Above the Rooftops**

On the 3<sup>rd</sup> Upper Level, visitors enter the airspace above the Energy Farm's rooftops. You're on your way into the clouds. Wind turbines, solar-powered airplanes and lots more exhibits provide plenty of opportunities to experiment with amazing equipment and learn how it works. Let solar energy and wind power get you charged up! A journey to the center of the Earth is an exciting excursion indeed, and one that delivers profound insights into all that geothermal energy can do. On this tour, you can puzzle together the optimal energy mix, seek innovative new means to store energy, clever methods of generating it, and ways to use it smarter and more efficiently.

### **Narrative Form of Imparting Knowledge**

Silke Petzold, project director at Petri & Tiemann, coordinated the design of Science Center Wels's content. Right from the start of the concept development process, her primary objective has been "to present renewable forms of energy to the Wels Science Center's visitors in the form of a narrative." There will be less glitz and bombast than in other science centers; the accent will be on attractive characters and charming narratives attuned to the defining features of this region and gracefully set amidst this captivating piece of functional architecture." Petzold's synopsis of the story that future visitors will follow on their tour through Welios®:

*"Jouli the Energy Genie lives together with his family in a high-energy household. The genie manifests his genius in the form of inventions that are unusual and even rather off-beat, but he never reveals himself. Instead, his daughter Lucie serves as the visitors' narrator and guide. Jouli's wife is an engineer who travels the world investigating all that's new, exciting and has anything to do with energy. But also to implement her husband's innovative ideas wherever possible. And then there's Grandma—a good soul and a gracious, supportive spirit to have around. Visitors will encounter her at several exhibits. But these figures are never visible; they're a fictional cast of characters active in the background. Here and there, they leave their traces in the exhibition setting."*

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*Silke Petzold* has worked in the leisure & tourism industry for 15 years. Since 2008, she has been a project manager at Petri & Tiemann, a company that has 10 years of experience consulting on, planning, developing and operating knowledge-based attractions (including Universum® Bremen and Klimahaus® 8° Ost Bremerhaven). Her efforts are currently focused on coordinating the setup of the Welios®. She is also actively involved with several other edutainment-oriented leisure & tourism projects, primarily in German-speaking Europe.

## Facts & Figures

*Architects* – Linz-based archinauten – dworschak + mühlbachler architekten zt-gmbH

*Planning* - OÖ Science-Center Wels Errichtungs-GmbH (principal shareholders: Holding Wels GmbH and Energie AG; additional shareholders: Raiffeisenlandesbank and Sparkasse OÖ)

*Building Owner & Commissioning Client* - OÖ Science-Center Wels Errichtungs-GmbH

*Operator of the Facility* - Welios Betriebs-GmbH (shareholders: Petri & Tiemann GmbH, Bremen; Kraftwerk Living Technologies GmbH, Wels; The City of Wels)

*Concept Development* - Petri & Tiemann GmbH, Bremen ([www.p-t.de](http://www.p-t.de)) supported by a commission of experts (Leo Ludick and Erich Steinbauer of the University of Linz; Rudolf Kraft of the Wels Campus of the Upper Austria University of Applied Sciences; Günther Vormayr and Norbert Rainer of Klimabündnis; Christoph Panhuber of Fronius International) in the fields of education, physics, renewable sources of energy, and the environment.

*Building* - This facility has been planned as an urban hub situated in the transitional zone between downtown Wels and the city's expo center. The exhibition content's focus on energy is manifested by the architecture itself—both its aesthetic form and its use of materials and infrastructure designed to minimize energy consumption.

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*Financing* – Approximately €22 million have been put up by the lead investors, the City of Wels, the Province of Upper Austria (€10 million each) and the other shareholders, Raiffeisenlandesbank OÖ and Sparkasse OÖ (€400,000 each). Additional financing has been provided by the Friends of Science Center Wels association.

*Catchment Area/Range* - Welios will draw visitors from residential areas and schools within a two-hour drive and resort areas within a 45-minute drive.

*Usable Space* – Permanent exhibition: 2,500 m<sup>2</sup> // Temporary exhibit: 500 m<sup>2</sup> // Event venues (modular): 750 m<sup>2</sup> // Total usable space: ca. 6.200 m<sup>2</sup>

*Logo* - Designed by the Gruppe am Park communications agency (Buchegger, Denoth, Feichtner & Haslinger Keck), the logo symbolizes the five forms of renewable energy (that can be counted on one hand) as well as the basic principles of Welios®: “seeing and grasping” as well as “experiencing with all five senses.” Plus, its green color is meant to underscore sustainability.

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