

## Brief description HELIOVIS AG



HELIOVIS AG, a young Austrian based company, develops an innovative technology to use solar energy. The product is an inflatable solar concentrator, called "HELIOtube", made solely out of inflated plastic foils. The pneumatic principle ensures a very efficient use of materials by its light weight construction. Furthermore, it gives stability and rigidity to the structure, in contrast to massive and hence expensive steel constructions as in the case of conventional parabolic troughs. As a result, the HELIOtube only needs about 5 kilograms of materials per square metre of concentrator surface. A parabolic trough in comparison weighs 50 kilograms per square metre of concentrator surface.



*Construction:* The HELIOtube consists of a transparent upper, a reflecting middle and a robust lower foil. The reflecting foil separates the cylinder horizontally into two air tight chambers. Due to the pressure difference between the upper and lower chambers, the mirror foil is curved. The light enters first through the transparent upper foil and is then reflected and concentrated by the concave mirror foil onto the receiver.

*Advantages:* The HELIOtube has the potential to reduce the costs of modern solar-thermal plants by 25 to 50 percent. The reasons for this advantage are the following characteristics:

- Reduction of material usage of up to 95 percent depending on the size of the concentrator
- Light-weight structure
- Simple, fully automated production from reels
- Stability, that increases with a larger diameter of inflatable structures with the same material usage per square metre of reflecting surface
- Scalability of the HELIOtubes, that can reach a diameter of 20 metres and a length of several hundred metres

*Development status:* Since 2008, the functional principle of the HELIOtubes was evaluated and simulated as well as tested on various models at the Vienna University of Technology. In January 2009, HELIOVIS AG



was founded, and currently, a team of 15 engineers and technicians from seven different countries are working on the development of HELIOtubes. In 2009, the first prototypes were built and tested successfully. The insights and experiences were incorporated into the new prototypes (see image), that was operated in summer 2010. In spring 2011, a 40 metre long HELIOtube has been put into operation in co-operation with the listed utility provider EVN AG at its power plant site Dürnrrohr (Lower Austria).

HELIOVIS AG is currently seeking partners to realise further pilot and demonstration plants of larger sizes, ideally located in southern countries and potentially boosting existing solar or conventional thermal power plants or connected to district heating grids.

# HELIOVIS AG at a glance



Start of activities:	2008
Legal form:	Austrian public limited company, established 2 February 2009
Commercial register:	FN 322551s, Landesgericht Wiener Neustadt
Share capital:	97,002.- € in non-par value shares each 1.- €
Share holders:	Founders, management and private investors
Management board:	Dr. Felix Tiefenbacher Dr. Wolfram Krendlesberger
Supervisory board:	Prof. Dr. Markus Haider, Chairman Dr. Gottfried Himmler Dr. Eugen Stermetz DI Rudolf Schwarzinger
Inventor:	Johannes Höfler
Development status:	Pilot plant (25 kW thermal) in collaboration with EVN AG and TU Vienna at the power plant site of Dürnrohr (Lower Austria), length 40 m, aperture 1,5 m, one-dimensional tracking, pneumatic control, 24/7 operation. Before various models and prototypes validated in cooperation with Vienna University of Technology, lengths up to 13 m, aperture up to 1.5 m.
Infrastructure:	Office space, work shop and installation hall on a single site.
Awards:	1 <sup>st</sup> Prize „VC & PE Award“, 2011 2 <sup>nd</sup> Prize „Plastics & Product Design“, 2011, Plastics Cluster 1 <sup>st</sup> Prize Winner Vienna Future Price, 2010, “Innovative companies” Winner “Golden Daphne Award”, Vienna, 2009 1 <sup>st</sup> Prize of “ZIT Call Resources”, Vienna 2009 1 <sup>st</sup> Prize Winner Vienna Future Price, 2008, “Start-Ups & Newcomers”
Funding:	AWS, Austria Wirtschaftsservice: „PreSeed“ and „Seedfinancing“ ZIT, Zentrum für Innovation und Technologie, Vienna (2 projects) Klima- und Energiefonds (2 projects) NöBEG (Equity financing agency of Lower Austria) FFG (Austrian Research Promotion Agency)
Cooperations:	Institute for Energy Systems and Thermodynamics, TU Wien EVN AG Polymer Competence Center Leoben MachtTechnik AG Einsiedler Solartechnik Plastics Cluster of Lower and Upper Austria
Patents:	European Patent granted (EP08714313) 2 Austrian patents granted (with PCT applications) 2 patents pending HELIOVIS, HELIOtube and logo registered as trademarks
Employees:	15 from seven different countries

## Management Board

**Dr. Felix Tiefenbacher**, PhD in experimental physics, has several years of experience in launching, managing and financing start-up companies. Before founding HELIOVIS AG, Felix was CEO for a start-up company in the field of quantum security from 2006 to 2008. Felix has several years of a postdoctoral research experience in the field of quantum optics at the University of Vienna. During his PhD thesis 2002 at the Swiss Federal Institute for Snow and Avalanche Research in Davos, he was responsible for the management, the renewal and operation of the Swiss Avalanche Test Site.

**Dr. Wolfram Krendlesberger** studied economics and commercial science at the Vienna University of Economics and Business Administration and the London School of Economics. After first professional experiences in auditing and investment banking, he worked as a consultant with Roland Berger Strategy Consultants from 1996 to 2002, focusing on utilities. Until the end of 2008, he was executive board member of Altstoff Recycling Austria AG. Until mid 2010, he served as CEO in the restructuring process of an Austrian group operating in the environmental technology and disposal industry. Since mid 2009, Wolfram has been on the lookout for promising start-up projects and he has invested into five young companies.

## Supervisory Board

**Prof. Dr. Markus Haider**, Chairman of the Supervisory Board, is Head of the Institute of Energy Systems and Thermodynamics at Vienna University of Technology. He joined TU Wien as Professor in 2006 after a 14 year industrial career in the electric power industry. After studying mechanical engineering at Vienna University of Technology, he joined CNIM group, a leading provider of turnkey industrial solutions. He was development and proposal engineer (ACFB and PCFB in cooperation with Foster Wheeler) and Technical Head of division Babcock Enterprise and Babcock Wanson (Paris). After 10 years in CNIM group, Markus joined GE Energy in Belfort France for 3 years as Head of Proposal Management of gas turbine power plants.

**Dr. Gottfried Himmler** is an experienced entrepreneur and has been involved in a number of biotech start-up companies such as f-star, igeneon, CODON and Genovision as founder and in various executive management positions. He has a strong background in engineering and holds a PhD degree from the University of Applied Life Sciences in Vienna, Austria. Prior to his industrial activities, Gottfried was assistant professor at the Institute of Applied Microbiology in Vienna/Austria.

**Dr. Eugen Stermetz** is Chief Financial Officer (CFO) of SVOX AG, Zurich, a leading provider of embedded speech solutions to the automotive and mobile industries. He has extensive experience in building and financing high-tech start-ups. Before joining SVOX, Eugen served as CFO of the Austrian biotech company f-star and prior to that as CFO of igeneon. He started his career by working as a management consultant at the Boston Consulting Group's corporate finance practice in Munich and Vienna. Eugen holds a lic. oec. degree from the University of St. Gallen, Switzerland and a doctorate from the Vienna University of Economics and Business Administration.

**DI Rudolf Schwarzinger** studied Mechanical Engineering Economics at the Vienna University of Technology. After seven years in various management positions at UNILEVER Austria, he worked as a management consultant at Roland Berger Strategy Consultants, mainly focusing on operations strategy. From 2007 to 2010 he served as Chief Financial Officer (CFO) at Amann Girschbacher AG a worldwide operating technology company in the dental business. Since the successful exit to an US based technology fund, he works as an entrepreneur and investor in technology start-up-projects.

Status: 15.11.2011