



your EPC contractor of choice

Powered by the power of the sun, VISSOLIS is a developer and integrator of world-class solar electric generating systems – financing, engineering, procurement, construction and operation.





VISSOLIS – the power of the sun

We are developers of world-class solar electric generating systems – financing, engineering, procurement, construction, and operation. In physics, power is the rate at which energy is transferred, used, or transformed. At its core, Solar power is about harnessing the power of the sun and converting sunlight into electricity. VISSOLIS (Latin for “the power of the sun”) is focusing the latest in photovoltaic solar energy technologies and applying their vast and promising potential for a safe and sustainable future- independent from all kind of fossil fuels and uranium. Empowered and energized by the sun, we want to be your EPC (“Engineering, Procurement, and Construction”) General Contractor and PV operator of choice.



Michael Volz

Before joining VISSOLIS GmbH, the parent corporation headquartered in Germany, Michael served for many years as a consultant for large solar companies in Germany, primarily responsible for project management and financing. As the former director of a leading, international bank in Germany, he spent several years in China to build up the banking business from the first moment that China opened its borders and markets to European trade and finance. He is co-founder and managing director of Solmotion GmbH, the majority shareholder of VISSOLIS GmbH.



Carlos Mayer

Carlos is co-founder of vis solis GmbH, Germany, the parent company of vis solis Inc.. He implemented the skills and experience that VISSOLIS had applied in the European market to the United States and moved to Tennessee to oversee US operations. Before transitioning into solar development, he worked for many years as a consultant and entrepreneur in various areas of the renewable energy business, including wind and biomass. Carlos started his career in the late 80's as Certified Public Accountant with one of the largest multinational firms in Düsseldorf, Germany and Kansas City, MO. Carlos' broad experience in accounting, financing, and project management has been a real asset to both the European and domestic growth of vis solis.



Tim Hayes

Tim Hayes leads design and construction of investor-owned solar photovoltaic power plants. Mr. Hayes developed his first commercial photovoltaic system in 2000 and has provided senior management for public and private development and construction organizations for more than twenty years. In addition to solar, his experience includes development of coastal wind farms, sustainable technology parks, green buildings, and facilities for PV manufacturing. Mr. Hayes has awards from the US Conference of Mayors, National Association of Counties, The Conservation Fund, US Secretary of Housing and Urban Development, and US EPA. He is a graduate of the University of Colorado, a member of the American Institute of Certified Planners and a licensed General Contractor.



Keith Gordon

Keith Gordon, Esq., LEED AP started working with vis solis in October of 2010 and became its general counsel in February of 2011. Keith's duties include facilitating the drafting, negotiating and execution of all Letters of Intent, Power Purchase Agreements, Leases, Asset Purchase Agreements, and any and all additional documents needed for Solar PC project completion. Additional duties include overseeing the due diligence process for the examination of potential projects and the ultimate sale of investor-grade solar projects. Keith has significant real estate development experience having served as in-house real estate management for two national corporations. In addition to being an attorney, Keith is a LEED AP, an accreditation indicating proficiency in green and sustainable development by the Green Building Certification Institute.



VISSOLIS – the company

Our vision is to convert the power of the sun – the most abundant sustainable energy resource on earth – into competitive, reliable and environmentally friendly electricity to consistently meet the energy demands of a modern industrial and ecologically responsible society.

Our US operations are based in Franklin, Tennessee, just south of Nashville, TN. The City of Franklin was named after Benjamin Franklin who was one of the founding fathers of the United States. Benjamin Franklin conducted extensive research on electricity in the 18th Century. He gained international reputation as a scientist for his famous experiments in electricity and for his many inventions, especially the lightning rod. We take pride in keeping the legacy of this colorful politician and inventor alive in our vision for a better world.

solmotion – the corporate office



Solmotion GmbH, a German corporation, acquired 55% of vis solis GmbH in December 2011 and is the majority shareholder. Founded by brothers **Michael and Thomas Volz**, the company covers most of the business purposes of **VISSOLIS** but is in addition distributor of key components and balance of system materials across the European market. Before investing in **VISSOLIS**, Solmotion had already worked closely with **VISSOLIS** for several years, and installed in excess of 25 MW as a team.



VISSOLIS – Strategies and Values

The key success factors of **VISSOLIS** are experience, competence, and quality. Through the leadership and professional experience of Michael and Carlos, paired with expertise of Tim and Keith, **VISSOLIS** has grown from scratch in the US to become a leading EPC contractor in the Tennessee Valley. In classes at University, engineers will learn the principle “form follows function”. Michael and Carlos – the banker and the accountant – are convinced that “form follows financing”. Based on their professional experience and competence, the senior management of **VISSOLIS** teams up with highly qualified professional engineers and attorneys to get the right job done right, bankable, accountable, technical, and legal. This is the difference between theory and praxis and a key success factor of **VISSOLIS**. Oops, now we have shared our secret of success.

VISSOLIS focuses on quality. We source and procure key components and balance-of-system material from leading global manufacturers who are known and proven for their quality, services, and bankable guaranties and warranties. We strongly believe in decentralized power and local job generation. Solar energy is worldwide an economic engine and local job booster for engineers and installers. The combination of global materials and local labor is the symbiosis for best quality at competitive prices for the benefit of both: the utility rate payer and the owners of the system.

Based on what you have read about the professional background of the company's management you would have expected it: Quality means not only labor and material, but also bankability and accountability for its equity and debt investors. Many module manufacturers promise 25-year performance warranties without financial backup. We focus on manufacturers who back up their products with quality manufacturing practices and a strong financial history, and more importantly reinsure the warranties by leading reinsurance companies.

Research and development, work force training and public education and demonstration, manufacturing and assembly are very important to us. We partner with leading Universities and search for open dialog on sustainable growth and reduction in fossil fuel use with Research and Technology Centers. We build bridges between manufacturers and universities, even contributed to the Transatlantic Climate Bridge between United States of America and Germany.

“Hit the ground running”

“Global resources combined with local Balance of System and Labor made this project a success story for VISSOLIS.”
Carlos Mayer, Executive Director VISSOLIS, Inc.



Project team
(Patrick Lindstädt, Michael Volz, Keith Gordon, Carlos Mayer)

Case Study – Utility-scale project in the Solar Zone of UA Tech Park in Tucson, AZ

Experience – Hit the ground running

Only a few weeks before year-end 2011, VISSOLIS was approached by the PV module manufacturer Astronergy to save a stalled project. It was developed by an unrelated party and was in danger of being cancelled because of the lack of financing, expiration of the Power Purchase Agreement and the termination of the land lease. Within only a few weeks, VISSOLIS managed to restructure the project, brought it back on track, financed it with both, equity and bank loans, procured material and commenced with the installation of a significant nature before year-end. Not only the project was saved, but also the 1603 Grant was safe harbored.

Competence – Playing with the big boys

VISSOLIS structured, financed, and managed the installation of the utility-scale project and interacted with the leaders of the industry. The 6.1 MW ground-mounted project is located in the Solar Zone of University of Arizona Tech Park in Tucson, Arizona. The University of Arizona received the Green Innovator Prize of the Year 2012 for its Solar Zone development. The electricity is being sold through a Power Purchase Agreement to Tucson Electric Power (TEP). The Solar Electric Power Association (SEPA) has recognized TEP as the Investor Owned Utility of the Year 2012. Close to completion of the installation, the project was sold to Duke Energy, the largest utility in the United States.

Quality – Fitness for purpose

Before the installation had commenced, the project was financed through equity of a private investor and a bank loan from the North American Development Bank (NADB). On behalf of the bank, professional third party consultants audited and verified all our undertakings from dawn to dusk and from dusk till dawn. Without quality control and quality management, VISSOLIS would not have sustained and sold the project at the end.

Project description

- **System AC Rating (kWAC):** 5,000
- **Module Type:** Astronergy CHSM 5031T (LR)
- **Module Nameplate Rating:** 6,119 kWp DC (125 Wp and 130 Wp)
- **Number of Modules:** 48,006
- **Inverter Type:** 10 x 500 kW Advanced Energy Solaron 500E
- **Annual Generation (MWh/year):** 11,565
- **DC Capacity Factor:** 21.6%
- **Annual Yield (kWh/ kWp):** 1,890
- **Performance Ratio:** 80.9%

“From Nuclear to Solar”



“Based on the MLD Technology of DEGER, our partner VISSOLIS has demonstrated over 40% more energy yield compared to a fixed ground mounted PV system.”

Andreas Schwedhelm, DEGERenergie GmbH

Supported by: Federal Ministry of Economics and Technology
on the basis of a decision by the German Bundestag

Project lead: dena German Energy Agency

*4 Deger/Q-Cells-trackers are part of the worldwide “dena Solar Roofs Program” coordinated by Deutsche Energie-Agentur GmbH (dena) - the German Energy Agency - and co-financed by the German Federal Ministry of Economics and Technology (BMWi) within the initiative „renewables – Made in Germany“.

Case Study – Oak Ridge Solar Park Project, Oak Ridge, TN – “renewables - Made in Germany”

Four trackers of Oak Ridge Solar Park Project, Oak Ridge, TN are part of the worldwide “dena Solar Roofs Program” coordinated by Deutsche Energie-Agentur GmbH (dena) - the German Energy Agency. VISSOLIS identified and chose the site, developed the project, designed, engineered, structured, financed, installed and commissioned the system, as well as owns and operates the system. The project is a showcase project which demonstrates “renewables – Made in Germany” and is the first project in the United States under the “Solar Roofs Program” of dena. All of the solar roofs projects chosen by dena are designed as private-public partnerships (PPP) and are co-financed by the German Federal Ministry of Economics and Technology (BMWi) within the initiative “renewables – Made in Germany”. Since 2004, over 45 projects have been realized worldwide through this program initiative.

Project location

The dual-axis-tracker-project is located in the Heritage Center Industrial Park in Oak Ridge, Tennessee, a large industrial complex spawned from the “Manhattan Project”. Oak Ridge played a key role in the “Manhattan Project”, a top-secret program to build the world’s first nuclear weapons during World War II. The Oak Ridge National Laboratory is still the largest multi-program science and technology national laboratory of the United States Department of Energy. Installation and commissioning of the dual-axis PV system was from December 2012 – April 2013.

Project description

- **Installed Capacity:** 49.8 kWp DC, 42 kW AC, annual yield approx. 91,000 kWh
- **Technology:** 7 DEGERtracker 6000 NT dual-tracking system on 20 ft. tall mast
- **Modules and Inverters of the overall project:**
 - 5 trackers* with each 28 Q.Cells modules Q-Peak BLK 255 W Mono and 1 inverter per tracker @ SMA Sunny Boy 6000 US
 - 2 trackers with each 30 modules Astronergy CHSM6010-235 W Poly and 1 inverter per tracker @ SMA Sunny Boy 6000 US





Case Study – Small Commercial Sun Studio

VISSOLIS installed a 50 kW system on the roof of a sun tanning studio in Fayetteville, Tennessee. We found it ironic that the PV project converts solar power of sunlight into electricity which is used to power tanning beds to provide cosmetic tan while sun bathing. A benefit claimed by

the tanning industry of tanning indoors rather than tanning outside is the amount of control the tanner has. We don't know what the doctor recommends but **VISSOLIS** appreciates the business and supports the initiative: **More solar energy to power sun studios!**



Case Study – Large Commercial Retail Shopping Center

VISSOLIS installed 200 kW on a retail shopping center roof in Lenoir City, Tennessee. The owner, Phillips Edison Company (PECO), a Real Estate Investment Trust owns and operates over 225 shopping centers with over 25 million ft² in 35 States.

After the first successful installation in May 2012, **VISSOLIS** was chosen to be their EPC contractor of choice for all PV installations. As part of their Green Technologies and Sustainable Building Practice, **VISSOLIS** contributed significantly to achieve corporate sustainability marketing goals. The green movement among the retailers and shopping centers is moving forward with momentum way beyond dwindling resources, energy and climatic changes, for many good reasons: It is about responsible property investment and following lifestyle changes of their customers. Using unused roof spaces of shopping centers creates additional income and good public relation. Following the leadership of Phillips Edison, **VISSOLIS** installs now more and more systems for PECO and other retailers throughout the United States.

“VISSOLIS demonstrated competence and experience when doing the first retail shopping center roof. The door is now wide open for more projects to come.”

Richard Jones, awarded 2011 Nashville Business Journal Retail Broker of the Year



Case Study – Agricultural Rural Horse Farm

VISSOLIS installed a 50 kW system on the roof of the 19,000 ft² indoor arena on the Riverdale Horse Farm. The horse farm is well known in the state for its breeding, boarding, and training facilities. The property owner already had installed and invested in a 200 kW ground mounted system for his own in 2012. **VISSOLIS** leases the roof space and manages installation and operation. This was at no cost for the

agricultural business. By adding the additional capacity, the horse farm even became a net exporter of electricity and feeds electricity back into the grid. Agriculture is one of Tennessee's major industries. Agricultural customers have a lot of land available which could be used for PV projects even without disturbing and disrupting the farming operations.

“VISSOLIS is easy to work with and they deliver what is promised.”

Barry Brown, Brown Construction, Fayetteville, Tennessee

Case Study – Utility Scale Project Lincoln Farms

VISSOLIS structured, designed, financed, installed, and owns and manages the Lincoln Farm projects. Technically, they are four projects of 750 kW each but since they were built the same time and with the same stakeholders in the project, we consider it to be a 3 MW project. It was the first project for **VISSOLIS** in the USA. The power is purchased by Tennessee Valley Authority over 20 years under a Power Purchase Agreement (Generation Partners Program). The energy feeds into the grid through Fayette Public Utilities. FPU became, literally speaking, overnight a leading solar utility, ranking 3rd in the nation in 2011 in terms of Solar Watt installed per customer. In 2012, FPU moved even up to rank number 2 in the United States. **VISSOLIS** is proud to have contributed to the success.



Consulting and Operating Management

The **VISSOLIS** team facilitates the development, installation, and financing of photovoltaic projects. We also offer consulting services like due diligence and project management as well as asset management services. **VISSOLIS** manages and monitors currently over 10 MW as O&M service provider for our clients. We use a comprehensive service package of professional remote monitoring from a leader in the market and provide regular inspection and maintenance services to achieve maximum yield security.

“VISSOLIS would like to say „thank you“ for the Trust, Empowerment, Appraisal, and Motivation we received from our business partners. This is really what TEAM stands for.”

Carlos Mayer, Executive Director VISSOLIS, Inc.

“BC Wood Properties is excited to partner with **VISSOLIS** in the installation of solar rooftop systems on our shopping centers and is happy to have had 100 kW installed so far by **VISSOLIS** in 2013. **VISSOLIS** was careful to take into consideration our concerns as the owner of shopping centers, our tenants, and the integrity of our roofing system. We would welcome working with **VISSOLIS** on future solar installations.”

King Offutt, President and Chief Operating Officer BC Wood Properties, KY

“**VISSOLIS** is one of the most competent, dedicated, and professional development teams I've worked with. From their management team to their technical team, they were engaged, responsive, and knowledgeable. The project was completed on time and on budget. It was a pleasure working with **VISSOLIS**, and I highly recommend them.”

Carmine A. Tilghman, Director – Renewable Resources & Programs of Tucson Electric Power, AZ

“My experience with **VISSOLIS** proved to be both positive and encouraging, paving the way for a continued relationship. The entire team is dedicated to ensure every aspect of a project has been critiqued and polished. They are world class people with world class motivation.”

William B. Brown, Owner Brown Construction, TN

“**VISSOLIS** fully commit to US solar PV downstream service by utilizing their professional skills and knowledge. Astronergy really appreciate for **VISSOLIS** flexible but high efficient capability in designing and execution for couple of PV projects.”

Dr. Chuan Lu, Vice President, Board Secretary Astronergy, CA

“The **VISSOLIS** team is very professional and efficient, and a pleasure to work with. We have provided them with racking equipment and support on several successful flat roof PV projects to date, with more on the way. Our philosophy is to build true partnerships with successful developers, and we have accomplished that with **VISSOLIS**.”

Chris Amsbary, Regional Account Manager of PanelClaw, MA

“Tim Hayes and Carlos Mayer are 2 of the most dedicated and hard working individuals developing green energy today! The team of **VISSOLIS** have accomplished and continue to execute project after project with a small team of dedicated people. With the amount of work it takes to find, develop, plan and execute to completion a Solar project, **VISSOLIS** does more with less than any other company I have ever had the pleasure to work with.”

Tom Kosto, Horn Brothers Corporation, NC

“As a real estate broker, I am excited to be working with **VISSOLIS** on the installation of solar panels on both roof tops and excess land for shopping center owners throughout the country in this dynamic growing income generating vehicle for the shopping center industry. **VISSOLIS** has a proven track record of solar panel installations throughout Europe and I am honored to be a part of bringing this „green“ energy to America by helping to reduce our carbon footprint.”

Richard Jones, Owner of World Realty, TN, voted by the Nashville Business Journal as Retail Broker of the Year in 2011

“Phillips Edison, through its Green Options initiatives, is excited to have found a strategic partner in **VISSOLIS** for implementing its nationwide push for solar rooftop installation on its shopping center developments. Phillips Edison is committed to making a difference in its communities and its impact on the environment. **VISSOLIS** shares this same desire and is a perfect partner to Phillips Edison in its continuing energy efficient and eco-friendly practices. We see a bright future with **VISSOLIS**.”

Eric Richter, Vice President, Property Management, Phillips Edison & Company

“**VISSOLIS** is a highly professional group of people to work with. They keep in mind the highest standards of excellence for their customers, which shows in their attention to product quality and tight delivery schedules. Schletter looks forward to a continued partnership in the future.”

Martin Hausner, CEO Schletter USA

“**VISSOLIS** has demonstrated a deep knowledge and commitment to the solar industry of TN. It was remarkable how **VISSOLIS** implemented our DEGERenergie Dual axis technology into their Oak Ridge Laboratories project. It was a pleasure to work with Mr. Carlos Mayer & Mr. Tim Hayes and I'm looking forward for more challenging projects together with **VISSOLIS** in the USA.”

Adam Glapiak, Sales Manager USA DEGERenergie



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