

MILTON JAMES VENETOS

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SUMMARY

I am a technical leader, engineer and consultant with extensive experience launching, building and selling new hardware and software products and companies. I have over 20 years of service in the energy industry designing, optimizing, developing, commissioning, testing, and operating conventional and renewable energy facilities around the world.

- Skilled mechanical engineer, power plant thermodynamics and simulation specialist
- Deep understanding of the energy and process industries - Experience with oil & gas, renewable, nuclear, coal, combined cycle and advanced energy systems in a variety of capacities ranging from equipment design and selection to on site troubleshooting to conceptual design and modeling
- Certified Six Sigma Greenbelt with a diverse and extensive background in engineering, software, and quantitative problem solving
- Outstanding vendor and customer rapport
- Solid track record of providing creative and effective solutions to a broad range of business and technical problems
- Heat balance software developer and specialist with experience with all major heat balance software packages and extensive experience with GateCycle and EBSILON Professional
- 4 commercially successful products and companies (GateCycle/Enter Software, Blue Pumpkin/Onward, Greenlight HPS/Laserscope and Linear Fresnel Solar/Ausra) brought to market and sold

EXPERIENCE

04/04 – Present

Wyatt Enterprises, LLC, Los Altos, CA

Founder and Senior Consultant – Provide software development and engineering consulting services to the energy and medical device industries. Select projects include:

- EBSILON Professional sales and support in the USA.
- Consulting: Helped a client in the energy storage space secure \$1M in funding for a novel pumped heat energy storage system from a major oil company and \$1.5M for a novel molten salt energy storage concept from the California Energy Commission.
- Consulting: Performed equipment sizing, selection, cost estimating and performance modeling for clients in combined heat and power, energy storage and solar heat and power.
- New Hardware Product Development: Designed the cooling system (chiller) and major resonator components for a high power, 532 nm diode pumped solid state surgical laser. This laser was brought to market ahead of schedule and led to the ~\$715M sale of the client company Laserscope to American Medical Systems in June of 2006.
- New Software Product Development: Wrote custom code to integrate a major OEM's proprietary gas and steam turbine performance codes into EBSILON Professional. Enhanced GateCycle's Boiling Water Reactor (BWR) model. Created a steam properties add-in for Excel. Created an OPC compliant data acquisition client for Siemens Teleperm DCS systems used in several large power and water plants in the Middle East.
- Training: Conducted on-site GateCycle heat and mass balance software training for customers around the world instructing hundreds of engineers on GateCycle and power plant modeling.
- Consulting: Built detailed GateCycle models of nuclear, coal and gas fired power plants around the world.
- Consulting: Developed detailed GateCycle models of a synthesis gas fired General

Electric 7FB gas turbine and oxy-fuel combustion cycles under contracts with the US Department of Energy.

04/11 – 10/12

AREVA Solar Inc., Mountain View, CA

Senior Vice President, Product Management

Member of the Executive Committee. Led and managed the development of AREVA Solar's product road maps based on my extensive knowledge of solar thermal technology, energy markets, competitors and customer needs. Studied and proposed solar augmentation concepts for coal and gas fired power plants in the USA (TEP – Sundt and NV Energy Lenzie Stations), Australia (CS Energy Kogan Creek Station), South Africa (ESKOM Matimba Station) and India (NTPC Dadri Station). Tailored CLFR to new and expanding markets and applications and explored new technologies to reduce Levelized Cost of Energy (LCOE). Provided in-market technical sales support around the world.

03/10 – 04/11

AREVA Solar Inc., Mountain View, CA

(AREVA acquired Ausra forming AREVA Solar in February 2010)

Vice President, Systems Engineering

Tailored system level solutions and offers of AREVA Solar's Linear Fresnel (CLFR) Concentrating Solar Power (CSP) for customers around the world. Established AREVA Solar's presence in the Indian, South African, Middle Eastern and North African markets by leading technical sales support in those locales while continuing to support business development efforts in North America and Australia. These efforts resulted in AREVA Solar's first 44 MWe commercial project at a 750 MWe coal plant in Queensland and its selection as the preferred bidder by a major player in India's National Solar Mission for a 100 MWe CLFR power plant as well as Australia's Solar Flagships Program for a billion dollar 250 MWe hybrid CLFR power plant.

07/07 – 02/10

Ausra, Inc., Mountain View, CA

Director Performance Engineering – Key player on the team that negotiated Ausra's multi-hundred million dollar sale to AREVA. Developed system performance, costing and pricing models for Ausra's stand alone power and process / booster Linear Fresnel (CLFR) solar thermal steam generation plants. Represented Ausra in technical due diligence meetings with financial and strategic partners as well as potential investors, customers and acquirers. Built analytical models to design and optimize key components in the power block as well as solar field for maximum efficiency per cost. Built, maintained and ran Ausra's main performance model to provide technical sales and application engineering support to Ausra's commercial team to help screen and quote performance for project opportunities all over the world.

04/99 – 04/04

The General Electric Company, Menlo Park, CA

(General Electric acquired 100% of Enter Software in November, 2000)

Product Manager – Planned and led new power plant performance modeling software product development (\$2.6M budget for 2003). Managed a team of 6 domestic and 4 off-shore (in India) developers, plus 3 consultants.

Senior Mechanical Engineer – Lead developer of GE's GateCycle software. Oversaw and coded more than \$2M in contracted enhancements to GateCycle from 2000 - 2004. Provided highly acclaimed customer support and training, documentation and consulting. To date I have trained close to 1000 engineers around the world in the use of GateCycle.

02/93 – 01/96

Enter Software, Inc., Menlo Park, CA

Mechanical Engineer – Developed and implemented the Efficiency MAP online performance monitoring system. Managed and performed installation of the Efficiency MAP system in 10 U.S. combined cycle power plants and one IGCC plant. Constructed detailed power plant models using GateCycle. Improved modeling algorithms and procedures. Trained and mentored several interns and new employees. Provided documentation, customer training and support.

EDUCATION

Stanford University Thermo-Sciences Division, Stanford, CA
M.S., Mechanical Engineering

Worcester Polytechnic Institute, Worcester, MA
B.S., with High Distinction (Honors), Mechanical Engineering with Aerospace Option

University of California Extension, Berkeley & Santa Cruz, CA
Continuing Education classes in C++, Corporate Finance, and Java

Stanford Engineering Everywhere
Completed the advanced track of the inaugural on-line Machine Learning class given by Andrew Ng in Fall 2011.

Coursera
Completed classes in Python, Data Analysis, Robotic Controls, Finance, Thermodynamics and Machine Learning

PATENTS

DUAL FLUID CIRCUIT SYSTEM FOR GENERATING A VAPOROUS WORKING FLUID USING SOLAR ENERGY

United States Patent Application 13/505,245 Filed October 29, 2010

Inventors: Milton J. Venetos, Thomas Caulfield, William M. Conlon, Robert Brown Callery
Systems for producing vaporous working fluid are provided, including: a first fluid passage configured to convey a working fluid to a first solar heating system, wherein the first solar heating system heats the working fluid; a second fluid passage configured to convey a heat transfer fluid to a second solar heating system to produce a heated heat transfer fluid; and a heat exchanger configured to transfer heat from the heated heat transfer fluid to the heated working fluid.

SOLAR POWERED HEATING SYSTEM FOR WORKING FLUID

United States Patent Application 13/381,356 Filed July 8, 2010

Inventors: Milton J. Venetos, David C.V. Hawkins, William M. Conlon, Charles S.J. Pickles
A working fluid heating system that utilizes solar energy and fuel-fired heaters to heat the working fluid is provided. The system may have a fuel heating plant that has a first fuel-fired heater to heat a first portion of working fluid, a solar heating plant that has both a solar thermal-energy heater and a second fuel-fired heater to heat a second portion of working fluid. The first and second portions may join in a pipeline to supply heated working fluid to a facility such as an electrical generation facility, desalination facility, petrochemical facility, enhanced oil recovery facility, or air conditioning facility.

SYSTEMS AND METHODS FOR PRODUCING STEAM USING SOLAR RADIATION

United States Patent Application 12/780,783 Filed May 14, 2010

Inventors: Milton J. Venetos, William M. Conlon, Peter M. Tanner, Robert J. Hanson
Methods and systems for generating steam using solar energy are provided here. The methods and systems can be used to generate steam of a desired quality, e.g. about 70%, or superheated steam.

UTILIZING STEAM AND/OR HOT WATER GENERATED USING SOLAR ENERGY

United States Patent Application 13/486,898 Filed June 1, 2012

Inventors: Milton J. Venetos, William M. Conlon
Methods, systems, and apparatus by which steam and/or hot water generated using solar energy may be utilized to generate electricity or work are disclosed herein.

EFFICIENT LOW TEMPERATURE THERMAL ENERGY STORAGE

United States Patent Application 12/291,405 Filed November 10, 2008

Inventors: Milton J. Venetos, Erik Ellis

Thermal energy derived from a low temperature heat source is stored in one reservoir above ambient temperature and in another reservoir below ambient temperature for use in driving an organic Rankine cycle engine to produce electricity. The organic Rankine cycle engine may utilize an organic working fluid that boils below or near ambient temperature. Solar energy may be used to power a heat pump or chiller that provides the hot and cold storage fluids stored in hot and cold reservoirs for use in the organic Rankine cycle engine.

PUBLICATIONS

Economics of Steam Generation for Thermal EOR

2014 SPE International Petroleum Exhibition and Conference Abu Dhabi, UAE SPE 172004-MS
November 10 – 13 2014. <https://www.onepetro.org/conference-paper/SPE-172004-MS>

The thermal EOR steam generation projects in Gulf oilfields are on such a large scale that they affect an entire country's economic position. As such, the policies related to oilfield steam generation should be decided at the national level using the cost of the marginal fuel. This paper calculates the steam cost for three methods: 1) once-through steam generator (OTSG) 2) once-through heat recovery steam generator (OT-HRSG) and 3) solar steam generator (SSG).

Thermal Performance Testing of Solar Steam Generators

ASME Power Conference 2011 – 55178

July 14, 2011 <http://proceedings.asmedigitalcollection.asme.org/proceeding.aspx?articleid=1629801>

The Kimberlina Solar Thermal Power Station in Bakersfield, California, is AREVA Solar's first North American solar thermal energy facility and an important showcase of AREVA's Compact Linear Fresnel Reflector (CLFR) technology. This paper documents in detail the performance testing methodology used at The Kimberlina Solar Thermal Power Station to evaluate AREVA Solar's new technology.

Solar Steam Boosters for Coal-fired Power Plants

Power Engineering <http://online.qmags.com/PE1110/default.aspx>

November 18, 2010

Describes the use of AREVA Solar CLFR solar thermal steam generators to provide supplemental steam to coal-fired power plants and includes a sample calculation for Phoenix, AZ.

Superheated Solar Steam from AREVA Solar's SSG4

Energetica India <http://www.energetica-india.net/magazine/november-december-2010#/46/>

December 1, 2010

Describes the many cost saving and performance enhancing improvements incorporated in the latest linear Fresnel steam generator from AREVA Solar.

AFFILIATIONS

- Member Pi Tau Sigma – Mechanical Engineering Honor Society
- Member American Institute of Aeronautics and Astronautics (AIAA)
- Member American Society of Mechanical Engineers (ASME)
- Certified General Electric Six Sigma Greenbelt

COMPUTER SKILLS

- *Languages:*
C and C++, Java, FORTRAN, Python, Visual Basic, Perl, HTML, SQL, Ruby on Rails, R
- *Operating Systems:*
UNIX, Linux, Windows, Mac OS X
- *Applications:*
Solidworks, Solidworks Simulation, ALGOR, Visual Studio, EBSILON Professional, GateCycle, ThermoFlex, TRNSYS, MATLAB, ModelCenter, MS Office, Open Office, MS SQL Server