

ABOUT MARK SNYDER

www.marksnyderelectric.com | www.gswps.com

Mark Snyder is committed to the creation of a sustainable future and has been recognized worldwide as an expert on evolving alternative energy technologies and applications. Mark, a Master Electrician, Forensic Electrical Specialist, Inventor, and Officer in a publicly listed Energy company, is the descendent of 5 generations of family farmers and has been a commercial organic farmer for 30 years. Mark Snyder has been working in sustainable construction and green energy development for 44 years



MARK SNYDER
DAILY SHOW WITH JON STEWART

Mark's work has been the object of TV and other media commentary in the US, UK, Japan, Germany, and around the world. Notable appearances included a segment on the Daily Show with Jon Stewart:

<http://www.cc.com/video-clips/twvmse/the-daily-show-with-jon-stewart-pity-the-fuel>

and on ABC-TV in 2007, the first green build episode of Extreme Makeover: Home Edition

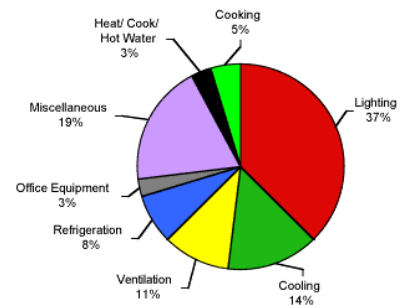


MARK SNYDER DESIGNED ENERGY SYSTEMS
FOR FIRST GREEN BUILT EPISODE OF
EXTREME MAKEOVER: HOME EDITION

From 1992-2002 Mark contracted to perform energy efficiency improvements in nearly 28,000 convenience and grocery stores in chains from coast to coast. Mark's contracting company was installing solar power to homeowners in the western states, from 1972 to 1996 off grid and from 1996 to the present both on and off grid. Mark is also a third party warranty provider, forensic electrician, and expert witness



for San Diego Gas & Electric and has been so for 28 years. In 2010-2011, Mark Snyder Electric (Mark's electrical contracting company) contracted to install poly-phase (smart meters) in San Diego and Orange Counties.



White House Millennium Council
2000

In 1998, in recognition of his understanding of our national electrical infrastructure and his commitment to excellence, Mark was selected by the Clinton Administration to serve on a White House Council to address the readiness of national infrastructure in anticipation of the Year 2000 Conversion.

A lifelong proponent of sustainable development Mark co-authored a bell weather paper early in 2001 published by the Sierra Club, supporting the region wide development of Solar Power for the Energy Engineers of America in part to replace a proposed gas fired 300-megawatt plant then under consideration.

Also recognized as a pioneer in waste to energy production, was trained in Europe with Dantrim International, a Danish company and worldwide leader in biomass energy systems. In 1985 Mark designed and installed Southern California's first large scale bio-energy conversion project in San Diego County using agricultural waste to produce 100 kW of electricity and waste heat for 20 acres of greenhouses using peach pits from a cannery.

ABOUT MARK SNYDER

www.marksnyderelectric.com | www.gswps.com



DARYL HANNAH AND MARK SNYDER
CELEBRATE OPENING OF BIO-WILLIE
STATION IN SAN DIEGO

In 2006 Mark co-founded Clean Air USA and partnered with Willie Nelson Biodiesel to bring clean alternative motor fuels to California. Mark was selected by Willie Nelson to accept an EPA Achievement Award, issued as a result of Mark's work in opening the State's first Bio-Willie station.



MARK SNYDER ACCEPTS
EPA AWARD
FOR WILLIE NELSON



Mark's long-standing expertise in solar power and in particular high efficiency passive solar tracking systems, led to Mark being selected to build the world's largest passive solar tracking array for the Alpine United School District in Alpine California



Mark's dedication to finding energy efficient solutions to home heating and cooling costs, led to his development of the Silent Night Aire™ super energy efficient, clean air, home ventilating, space heating, and cooling system. The Silent Night Aire™ line of products dramatically reduces the cost of air conditioning and flush harmful pollutants out of homes silently and seamlessly each night or day.

Mark's work in energy efficiency, healthy green building, solar power, and affordable green housing, found expression in the construction of Green Ribbon® manufactured and modular homes employing all those principles. Ten prototype homes were built under the supervision of the California Department of Housing and Community Development. Mark was later named by California's leading manufactured home fabricator, Hallmark Southwest Corporation, to be their first Green Building Advisor.

Mark has championed solar rights in California by opening master metered condo associations and manufactured home parks for solar power installations thereby enabling access to solar power to 3 million Californians.

Mark Snyder has been working with non-profit and indigenous groups in the Flagstaff and Four Corners areas of the southwestern US since the early 1970s when he lived in Sedona, AZ. During the past 7 years Mark has been active on renewable energy projects in that regions.

The Plateau Solar Project with Elsa Johnson of Iina Solutions of Navajo Nation started in 2010 in Navajo Nation of the Colorado Plateau and has evolved into the Plateau Solar and Wind Project in collaboration with Cherokee Wind Power from Kansas, a Native American wind power company.

In 2009, Mark was appointed Chief Technology Officer for Enertopia Corporation (TOP: CNSX), www.enertopia.com and has been involved in piloting an energy efficiency project for one of Canada's largest restaurant chains. The first store was completed in Vancouver, BC. Canada in 2011

ABOUT MARK SNYDER

www.marksnyderelectric.com | www.gswps.com



Mark Snyder demonstrates mobile, solar powered, water purification units to Iraqi Ministers of Water and Power



Solar powered, mobile, water purification units being manufactured at Mark's plant

Mark Snyder's solar powered, mobile, water purification systems are providing clean water daily to 600,000 displaced Iraqi villagers.

See video at: <https://www.youtube.com/watch?v=Gnx-rlyRAOc>

In early 2010, Mark created the Enertopia Multi-function Utility Structure (EMPUS) to provide solar electricity, solar distilled clean water, water pressure, domestic solar hot water, solar thermal heating, solar hot air space heating, solar cooling, sanitation, and communications for remote villages in the Free Republic of Sudan in North Africa.



Iraqi crews deploy Solar Powered Water Purification units in Iraq



Also in 2010, Mark modified his EMPUS design for the Plateau Solar Project to serve "off grid" Native American Tribal Elders (Navajo and Hopi) living on the Colorado Plateau.

In 2011, the first EMPUS was built and installed in Leupp, Arizona for an off the grid Navajo family that was in great need. The system was donated. That same year, Mark exclusively licensed Hallmark Southwest Corporation to factory build Green Ribbon® Net Zero Energy manufactured and modular homes.

In December of 2011, the Plateau Solar Project is started for 37 off grid elders to provide solar power, water storage, water pressure, solar hot air space heating and cooling, electrical, plumbing, gas, safety inspection, and high efficiency modular structures to house systems.

Learn more: <http://iinasolutions.com/category/solar-energy/>

ABOUT MARK SNYDER

www.marksnyderelectric.com | www.gswps.com

In November 2011, the first of 15 Hallmark Southwest Corporation Green Ribbon® Net Zero Energy homes is designed and fabricated for the Our Lady of the Desert Benedictine Monastery in Northern New Mexico. At this same time, the EMPUS building was redesigned into modules and called the “EMPUS Bump”



Benedictine Sisters receive donation for Green Ribbon® Guesthouse



In July 2012 Mark traveled to Germany and Nigeria in response to a request for assistance from the Governor of the Nigerian State of Adamawa, Nigeria to develop a municipal solid waste to electrical energy resource in the state’s capitol city of Yola, population of 250,000.



Mark is now in the process of completing a site-specific feasibility study to design and install the waste to energy system and increase the amount of available electrical power for the region’s electric power grid which presently operates only a few hours each day.

Mark’s work in Nigeria will also address the potential for installing solar power systems on both new and existing homes and buildings and bringing electrical power, clean water, sanitation, and energy efficiency to remote mountain villages and other communities.

ABOUT MARK SNYDER

www.marksnyderelectric.com | www.gswps.com

In April of 2013 Mark Snyder Electric cooperated with Navajo Community Development to replace an Elder with two severely Handicapped children, toxic home that was made out of railroad ties and transform the construction of a new standard Navajo HUD home into the most energy efficient home on Navajo Nation.

Mark Snyder Electric and IINA Solutions added a 1 kW wind generator the Navajo Niyol, a joint venture between Iina Solutions, Mark Snyder Electric, and Cherokee Wind Power, to create a wind generator that would withstand the cyclonic winds of the Colorado Plateau and provide Navajo and Cherokee jobs.



EMFES Elements feature composite solar-protected glass, and even store solar heat



Each EMFES unit stores electricity in eight lead acid batteries

READ MORE: <http://www.homepower.com/articles/solar-electricity/project-profiles/solutions-solar-efficiency-pair-navajo-nation>

ABOUT MARK SNYDER

www.marksnyderelectric.com | www.gswps.com

In December of 2013, Mark Snyder investigated a fire caused by a Chinese inverter on a solar power system that had



been installed at the Thing Valley Ranch, an 800 acre off grid ranch in the rugged mountains of east San Diego County owned by Jeremy McGrath. Mark Snyder Electric replaced the inverter with a micro-grid using an SMA four cluster of inverters and we optimized a poorly configured solar PV system, which is now operating AC/coupled at optimum performance. Mark Snyder Electric also worked with their generator expert to provide a synchronized generator backup with

two alternating generators for those weeklong blizzards that hit San Diego's mountains every winter.



READ MORE: <http://www.smainverted.com/2014/08/26/supercross-legend-jeremy-mcgrath-goes-full-throttle-at-thing-valley-ranch/>

ABOUT MARK SNYDER

www.marksnyderelectric.com | www.gswps.com



From January of 2014 through August of 2014, Mark Snyder Electrics all Native Crew with the help of a Grant converted a very well-intended but very poorly configured residential single phase solar PV systems at Star School in Flagstaff, Arizona to one super charged high efficiency three phase solar PV/wind system that is AC coupled and net zero energy after the addition of a new 18 kW solar PV system also installed by the all Navajo Crew trained and guided by Mark Snyder

The new Star School solar PV system is an SMA 12- multicluster AC/coupled system that is state of the art. The end result is a net zero energy system that is super-efficient needing only supplemental power on the darkest days. The solar modules are now optimized to the greatest extent possible producing 60-70% more power than they were previously. This has eliminated the high expense of running a generator every day



READ MORE: <http://www.starschool.org/solar-wind-power/>

ABOUT MARK SNYDER

www.marksnyderelectric.com | www.gswps.com

MARK SNYDER ELECTRIC OPENS XANTREX AUTHORIZED SERVICE CENTER IN POWAY, CA

Mark Snyder Electric has been working installing solar PV systems and inverters since 1978. Mark Snyder Electric has repaired in the field and installed thousands of Heart Interface, Trace, and Xantrex inverters.

In April of 2014 Mark Snyder Electric became the Xantrex and Schneider Electric Factory Authorized Service Center in San Diego, California for all of Southern California and Western Arizona, Northern Arizona, Utah, New Mexico, and Nevada

Mark Snyder Electric now repairs Heart Interface, Trace, Statpower, Prosine, Xantrex, Schneider Electric, mobile and renewable inverters.



Mark Snyder Electric provides field services and bench repairs replacing and repairing circuit boards for mobile inverters for RVs, truckers, marine, aircraft, other mobile applications and renewable applications. Mark Snyder Electric continues to expand its efforts to provide quality service to its customers



ABOUT MARK SNYDER

www.marksnyderelectric.com | www.gswps.com

MARK SNYDER ELECTRIC HELPS THE WHEELOCKS ACHIEVE THEIR DREAMS OF NET ZERO



In October 2014 Mark Snyder Electric adds battery backup to the Wheelocks net metered solar energy system.

Millions of people and companies dream of never paying another electric bill. But for most, the possibility of actually going net-zero remains unattainable, either because they don't think it's affordable or even possible.

Among the crowd of dreamers was Mr. Wheelock, whose 1800 square-foot home was built in the 1980s. Poorly insulated, the house had sky-high air-conditioning costs and electric heating bills to match. Even in a dream, it was unlikely the house could attain anything close to a net-zero goal, where the total amount of energy used by the structure annually equals the amount of renewable energy created onsite.

Beliefs aside, Wheelock was nothing if not determined. After paying ongoing high utility costs, there is one thing of which he became certain: "I don't want another electric bill—ever." Wheelock's home provides a shining example of energy efficiency, solar power, and storage, proving that net zero is a possibility without sacrificing modern comforts. And, despite running a welding studio, Mr. Wheelock has even beat his net-zero dream. Last year, he produced a \$200 surplus of power.... See entire article attached.

<http://www.nacleanenergy.com/articles/19576/living-the-dream-of-net-zero-energy-storage>

ABOUT MARK SNYDER

www.marksnyderelectric.com | www.gswps.com

MARK SNYDER ELECTRIC OPENS XANTREX AUTHORIZED SERVICE CENTER IN CARMICHAEL, CALIFORNIA

In March 2015 Mark Snyder Electric expands Xantrex Authorized Service to Northern California opening an Authorized Service Center in Carmichael California serving Sacramento, San Francisco, Northern California, Northern Nevada, Southern Oregon providing service for Heart Interface, Trace, Xantrex, Schneider Electric, inverters, RV, Truckers, Marine, Aircraft, and all mobile applications and providing service for renewable on grid and off grid inverters.



ABOUT MARK SNYDER

www.marksnyderelectric.com | www.gswps.com

MARK SNYDER REPORT ON MICROGRIDS PUBLISHED IN SOLAR POWER WORLD MAGAZINE



Solar Power World
February 15, 2016

S-5!
The Right Way!
The S-5-PV Kit.
The smartest and easiest attachment solution for solar on metal.

| 2015 TOP 500 SOLAR CONTRACTORS | SOLAR ARTICLES | 2015 TOP SOLAR PRODUCTS | LEADERSHIP | SUBSCRIBE

4 ways to maximize a microgrid
January 12, 2016 [Kathie Zipp](#) : [0 Comments](#)

Recent advances in energy storage, AC coupling, high-voltage conversion and energy efficiency can further improve performance, reliability and ROI of microgrids. The following tips will help you build the best systems for clients. [READ MORE:](#)

<http://www.solarpowerworldonline.com/2016/01/24443/>



ABOUT MARK SNYDER

www.marksnyderelectric.com | www.gswps.com

MARK SNYDER DESIGNS AND INSTALLS ADVANCED MICROGRID AT HERITAGE AMISH COMMUNITY CENTER



The 102 kW micro-grid for this system is being phased in over 2 years. Phase #1 our Amish Partner Trail Battery and Solar installed 6, Schneider Electric XW 6848 plus 20 kW of Kyocera Solar PV System. This is our first custom multi-cluster control system with a plc to manage solar power and generator. Due the Northern climate zone, a pyranometer to measure solar insolation watches the solar power to charge the batteries and power the complex.

This project could not have been accomplished without cutting the HVAC loads in less than half from 125 tons to 55 tons with superefficient insulation. Utilizing a new alternative fuel HVAC System, a natural gas fired 30 SEER heat recovery Variable Refrigerant Flow HVAC system capable of running on methane, biogas, pyrogas or syngas we reduced the HVAC to 15kw of electric load from 500kw of generator load to handle startup loads and 175kw to handle general loads to one back up 175kw genset. All the lighting is led, and appliances are energy star.

This project stands as a shining example of how the combination of cutting-edge energy efficiency and renewable energy can be combined in Northern latitudes of the US to drastically cut utility costs and create very practical and sustainable off grid Microgrid Alternative.

ABOUT MARK SNYDER

www.marksnyderelectric.com | www.gswps.com



Mark Snyder Electric has been installing Trace and Xantrex SW series SW 4024, 4048 inverters since they started being manufactured in 1990. This series of inverters is American made and was built to last 40-50 years with proper maintenance.

Mark Snyder Electric is continuing to support this spectacular series of inverters with continuing component level repairs, rebuilding and refurbishing.

Mark Snyder Electric has been installing and repairing Xantrex GT and PV Series Grid Tie inverters sizes 10-250 kW inverters. We also repair and refurbish these great inverters.

Mark Snyder is an expert in the proper installation and long-term maintenance of solar photovoltaic grid tie and battery backup systems.

Mark Snyder has provided expert testimony concerning Photovoltaic and Electrical Systems in over 5,500 court cases, arbitrations, insurance inspections, Contractor's Board complaints, home inspections, and utility claims over the past forty years.

Mark Snyder has been an expert in battery backup systems for over 40 years as well as being an expert in peak shaving systems with an emphasis on truly green battery solutions with a maximum of recycled content.

For Mark Snyder Electric, all batteries must be recyclable. Non-recyclable batteries are not green or renewable.

More soon

