



Solar Fiesta Workshop Descriptions and Presenters

Legend of Workshop Tracks

(R) = Renewable Energy, PV
(DM) = Design & Materials
(HCW) = Heating & Cooling & Water
(TF) = Transportation & Fuels
(EE) = Energy Efficiency

(SL) = Sustainable Living
(F) = Financial
(EP) = Energy & Policy Issues
(T/P) = Technical / Professional

Regular Workshop Descriptions (Alphabetical Order)

(Technical Sessions descriptions begin toward the end.)

☀ **10 Things I Wish I Knew When I Started: Installing a Residential Grid-Tie System** (T/P)

Sunday, Cedar Room, 1:15-2:15 PM
Aaron Cabral, Affordable Solar

What does a grid-tie system look like? How does it work? Avoid the common pitfalls of a residential grid-tied installation and maximize your solar investment.

Aaron is Affordable Solar's Residential Grid-Tie specialist who designs residential solar electric systems. With a degree from UNM in Physics, Aaron instructs renewable energy courses at CNM.

☀ **103 Years of Wood Frame Structures** (DM)

Sunday, Birch Room, 3:00-3:45 PM
Katje Erickson, Delta Third Design

Explore sustainability issues as they have changed since 1906 as applied to an historic pioneer silver miner's cottage at 11,200 feet at Animas Forks, Colorado, compared to modern Green construction, building science knowledge, and current upgrading for affordable frame home construction and expectations. Find out how progressive your frame home is--or is not yet--and what the future and retrofitting of existing homes could become.

Katje Erickson has 23 years' experience designing and drafting home plans across five states under www.delta-third.com exploring all materials and methods possible, providing owner-builder and conservation ranch sustainable sites and homes, affordable homes for Habitat for Humanity, and Energy Efficiency analysis.

☀ **Aerated Autoclaved Concrete: Construction Demo** (DM)

Saturday, Quad (outdoors), 10:45 AM
Michael Baron, Aerblock Enterprises, LLC

In an outdoor demonstration, Michael will touch on a number of topics regarding Aerated Autoclaved Concrete (AACs): History, production, attributes and block modules. Tools and equipment, cutting and drilling. AAC and block laying, U block placement over windows and doors. Fasteners, anchors, setting doors, windows and cabinets. Prep and application of finishes – stuccos, plasters, tile, brick, stone, etc.

Michael Baron is the founding director of AerBlock Enterprises LLC, in Santa Fe, NM. Aerblock distributes Autoclaved Aerated Concrete block and panel products, AAC tools, equipment and finishes through out the western states.

☀ **Alternative Fuels Transportation Overview (TF)**

Saturday, Elder Room, 12:00-1:00 PM

Frank Burcham, Land of Enchantment Clean Cities Coalition

This workshop reviews the range of alternative fuels currently used for transportation. Frank discusses each fuel and covers the unique benefits and drawbacks of each fuel type, their ideal applications and the vehicles in which they are used.

Frank Burcham has been the Executive Director and State Coordinator for the Land of Enchantment Clean Cities Coalition since 2003. He is the founding member of the Coalition as the Department of Energy's 11th designated Clean City Community in 1994. He has served on the Board of Directors from 1994-1997 and 2001 to now.

☀ **Bamboo Basics (DM)**

Saturday, Cedar Room, 2:30-3:30 PM

Pete Fust, Natural Building Resources

Bamboo may be the most useful plant in the world. It's the largest of the grasses, yet is stronger by weight than steel. It can be fashioned into shelter, tools and furniture, and is an important food source for millions of people. Bamboo is also a beautiful plant that grows very fast and can thrive in diverse climates, including the American Southwest. Bamboo Basics will identify bamboos appropriate for New Mexico, and show how to grow and maintain bamboo in a dry-land climate.

Instructor Pete Fust grew up on a North Dakota farm and earned a degree in horticulture. He has worked designing and creating landscapes in Seattle and California, and currently practices permaculture and natural building in Kingston, NM.

☀ **Basics of Wind Energy – Terms and Technology (R)**

Sunday, Elder, 2:30-3:30 PM

Mark A. Rumsey, Sandia National Laboratories

Topics to be discussed are: wind resource assessment and siting; wind turbine types, parts, characteristics and sizing; and a few words on storage versus grid-tied, vendors and costs. Reference material will be provided.

Mark Rumsey has been involved in wind energy technology research and development for over 23 years at Sandia National Laboratories. He works with other engineers researching and developing the next generation of utility-size wind turbines.

☀ **Building and Using Solar Ovens (SL)**

Saturday, Dogwood Room, 10:45-11:45 AM

Jeannie Martinez Welles, UNM-Gallup

This presentation will discuss different types of solar cookers available, with focus on building solar ovens. Oven use and foods cooked will be discussed along with methods for retaining heat when sun loss occurs. A slide presentation will show basic construction and various foods cooked in solar ovens.

As a Professor of Health Careers at the University of New Mexico, Gallup Campus, Professor Welles has worked over the past six years with solar oven construction and testing through the Center for Disease Control and the National Institutes of Health.

☀ **Building Green in New Mexico (DM)**

Sunday, Dogwood Room, 3:45-4:45 PM

Steve Hale, Build Green NM

This workshop provides an overview of green building considerations for new construction and remodeling. Steve will cover how to get a newly-constructed home certified and discuss incentives for building green.

Steve Hale is Director of Build Green NM, which certifies homes built to National Green Building Standards. A custom home builder (strictly green), Steve has served on National Green Building committees, including the development of the first ANSI approved NGB Standard, February, 2009.

☀ **Breaking Into Business: Personal Stories, Guidance, and Advice from Green Professionals (GJ)**

Saturday, Birch, 10:45-12:45

Moderated panel discussion. Check our website for details.

☀ **Community Power Off-Grid or In Town (SL)**

Saturday, Dogwood Room, 2:30-3:30 PM

Monte Ogdahl, New Mexico Solar Energy Association

Monte will present examples and possibilities as to how people who are neighbors in town or off-grid can form a community energy, water, or transportation system. These presentations will include concepts for existing properties and ways to plan new communities.

Monte Ogdahl grew up on the family ranch in Montana that was powered by a wind electric system. (Monte is currently spending some of the spring and fall there retrofitting the buildings and springs for solar and wind). He currently lives off-grid near Santa Fe and is

working in research on integrating renewable energy sources and developing RE educational resources.

☀ ***Designing, Building and Living in a Solar Home*** (DM)

Saturday, Cedar Room, 3:45-4:45 PM
Howard and Virginia Stephens, Vision Trust, Inc.

Energy conservation and sustainability are major considerations for designing a solar home. But, there is more to a solar home than saving energy and reducing your carbon footprint—your home must be comfortable and enjoyable. The Stephenses will share their experience in designing, building, and living in their passive/active solar home that in the first year of occupancy had a total net energy bill (gas and electricity) of \$60!

Howard Stephens is a retired energy R&D scientist and manager and is the Past Chair of the Albuquerque Energy Council. Virginia Stephens has served as a teacher, technical writer and editor. For the past ten years, they have produced energy outreach and education programs through the non-profit, Vision Trust, Inc. They also serve as members of the NMSEA Advisory Board.

☀ ***Energy Efficiency/Conservation: The ABCs of LEDs*** (DM)

Sunday, Birch Room, 4:00-4:45 PM
Mary Broemel, Shelter Earth; Justin Armstrong, Abraxis

Remarkable progress has been made with LED lighting in the past year. This workshop is a technical and visual review of the LED lighting products that are on the market today. The LED is ideal for residential use, because it uses a fraction of the energy without sacrificing wattage and luminance.

Mary Broemel is a residential designer that has focused on sustainable solutions since the early 1980's. Justin Armstrong is an electrical contractor that has been helping residential and commercial to maximize energy efficiency by choice and placement of lighting types.

☀ ***Energy Literacy: Understanding Numbers That Matter*** (EE)

Sunday, Aspen Room, 10:45-11:45 AM
Alan Zelicoff, Scientific, Medical-Legal Review

The quantity of energy we use – as individuals and as a society – is enormous. Yet, few people know where all of those kilowatt-hours and therms go, and thus have

little idea where to make changes that matter to the energy bill bottom-line or to the environment. In this lecture, we will use some real-world examples (and some not-too-unpleasant arithmetic) to understand our own energy use and where easy and very cost-effective changes can be made in just about every household.

Alan Zelicoff is a physicist and physician who writes and lectures frequently on energy policy and conservation and on healthcare issues. His most recent book is: "More Harm than Good", a practical look at addressing spiraling healthcare costs and maybe avoiding the unintended consequences of too much medical care. He is also the author of "Saving Energy without Derision", which even political conservatives praise from time to time.

☀ ***Everything You Need to Know About Small Wind Systems for the Home*** (R)

Saturday, Elder Room, 3:45-4:45 PM
Gary L. Anderson, WindSunNM, LLC

Gary discusses site criteria and explains the different types and sizes of small wind systems. He discusses what you need to consider before deciding whether or not to install a system yourself or to hire an installer. The workshop also covers code compliance issues and cost analysis.

Gary L. Anderson is an ex-residential contractor who started in alternative energy in 1978 in Las Cruces, NM. Starting with passive solar design and building, then evolving into all aspects of AE, he is currently owner of WindSunNM, LLC in Santa Fe and the proud owner of a Skystream 3.7 wind system.

☀ ***Financing Commercial and Residential Solar Installations*** (F)

Sunday, Aspen Room, 3:45-4:45 PM
Brian Cassutt, Consolidated Solar Technologies

Learn more about the new ways you can finance solar installations at your home or business. Solar is now affordable.

Brian is a finance MBA out of Anderson School of Management at UNM. He currently works at Consolidated Solar Technologies and is an expert in the field of renewable energy financing.

☀ **Getting the Best Bang for Your Buck: Heating and Hot Water Systems** (HCW)

Saturday, Elder Room, 2:30-3:30 PM
Robert Althouse, SolarWise

How do you choose a system with the highest returns and the least maintenance? We will compare the advantages of different kinds of solar thermal collectors, systems, and controls. We will go over the differences of flat plate and evacuated tube collectors, drainback and antifreeze closed-loop systems, and discuss figuring paybacks and integration of combination hot water heating systems. If you care about the stability of our environment, and wouldn't mind some financial stability as well, be ready for the best bang for your buck.

Robert Althouse heads SolarWise, bringing 25+ years of experience, designing and building solar and sustainable structures, both commercial and residential.

☀ **Green Building for Dummies** (DM)

Sunday, Dogwood Room, 10:45-11:45 AM
Robert Montoya, Extreme Green Design

This is an introductory overview on fundamentals of practical green building ideas that are affordable enough to be used in mainstream construction. Many green building products are great for the planet, but since few people can actually afford them, they have little impact. The primary emphasis will be passive solar, but we will also elaborate on Insulated Concrete Forms, SIPs and 3D Design. The workshop will enable participants to make informed decisions.

Robert Montoya is the former owner of the NM RASTRA Plant where the company supplied over 300 projects in NM and CO. In 2005, he began the construction company, Extreme Green Design, which is ranked as the number one residential green builder in New Mexico.

☀ **Green Cars, Blue Cars: How to Achieve Nirvana With Your Car** (TF)

Sunday, Dogwood Room, 12:00-1:00 PM
Skip Dunn, GreenWheels and BlueWheels

A green car that gets 40-60 mpg will reduce gas consumption and greenhouse gas emissions by 50-67%. That's a good start, but to achieve an 80% reduction – nirvana for a sustainable planet – cars must move beyond green to a true blue 100-200 mpg or a super blue 200+ mpg. Blue cars will almost

certainly be all-electric. Why? We will go over that and how EVs can play a major role in a smart grid and in providing stability to solar- and wind-generated electricity.

Skip Dunn is the Founder and President of the GreenWheels Center for Sustainable Transportation in Los Alamos. He is the owner of several antique and modern green cars, a 112 mpg (equivalent) Porsche 914 electric conversion, and three 245 mpg neighborhood electric vehicles.

☀ **Hands-On Weatherization for Homeowners** (EE)

Sunday, Quad (outdoors), 12:00-1:00 PM
Carrie McChesney, NMSEA

In this fun and engaging workshop, homeowners will learn what causes high winter heating bills and how to check their homes for the most common energy leaks. Carrie will show participants the different tools and materials needed to seal and caulk doors, windows and outlets, and demonstrates how to use them. Participants will then team up and try their new home weatherization skills. All participants will receive handouts full of free and low-cost resources and information that can help them lower their energy costs year-round.

Carrie McChesney is passionate about green jobs, energy and the environment. Carrie owns Concept Green, a sustainability communications and reporting company. She is also the Education and Outreach Coordinator for Consolidated Solar Technologies, where she works with homeowners and businesses to help them lower energy costs and understand the benefits of solar PV. She has extensive public speaking experience and has led several weatherization and efficiency programs for seniors, low-income homeowners, and tribal communities.

☀ **Heating and Eating with Mini Greenhouses and Solar Growing Pods** (SL)

Sunday, Cedar Room, 2:30-3:30 PM
Jeron Smith, Lasya Design Group

This workshop is a follow-up to last year's presentation on a solar greenhouse design tailored to year-round growing in the Southwest high desert. Feedback from ongoing seminar participants and winter testing has sparked strong interest in an even easier to build and more affordable growing area attached to the south side of your home. Learn what you can do on a budget to keep your greens-a-growing year-round!

☀ **Household Energy Independence – A Guide to Reduce Your Utility Bill** (EE)

*Sunday, Aspen Room, 9:00-10:15 AM, FREE
Randy Sadewic, Positive Energy, Inc. and Dalinda Bangert, EcoTerra Enterprises, Inc.*

The most effective approach to saving energy is energy efficiency. Step through the process of energy basics, tools to identify savings, and practical approaches to saving up to 50% of your bill, while reducing your carbon footprint. This course focuses on simple, practical solutions to cutting your bill.

Randy Sadewic is a frequent speaker and teacher on energy efficiency topics, and performs dozens of energy audits each year. Dalinda Bangert is a HERS rater and performs energy audits and ratings for homes, in addition to teaching energy efficiency.

☀ **How One Homeowner Got His Home PV-Ready by Dropping His Natural Gas Usage by 86%** (EE)

*Sunday, Dogwood Room, 2:30-3:30 PM
Robert Mallory, LEED AP, Southwest Noise Control*

Tired of high heating and cooling costs? Join Robert as he shares how he prepared his home for solar photovoltaics by first lowering his heating and cooling costs by 86% over an eight-year period. Robert shares his home energy conservation journey by sharing what worked, what didn't, how much it cost him and how much he saved. This workshop is perfect for the homeowner who wants to save energy before installing solar PV, but doesn't know where to begin. Robert's presentation includes humor, no-nonsense advice, before-and-after pictures, stories, and performance measures.

Robert Mallory is a homeowner passionate about energy conservation, renewable energy, and cost-effective solutions to responsible energy consumption. In his professional life, Robert owns Southwest Noise Control, LLC, which provides LEED-appropriate acoustical materials, calculations, and services for commercial buildings. Robert is a LEED Accredited Professional, a fellow with the Construction Specifications Institute and a member of New Mexico's Green Building Council.

☀ **Introduction to Solar Electricity** (R)

*Saturday, Aspen Room, 10:45-11:45 AM
Marlene Brown, New Mexico Solar Energy Association*

This workshop provides an introduction to photovoltaics (PV, solar electricity). This will be an

interactive class on the basics of PV, including components and terminology, for those with little or no previous knowledge of the subject.

Marlene has been working in the field of solar photovoltaics for 20 years. She has been a community advocate as well as a member and past President of NMSEA. She currently serves on the Board and teaches hands-on PV classes for the NMSEA.

☀ **Introduction to Solar Electricity** (R)

*Sunday, Aspen Room, 12:00-1:00 PM
Claudia Pavel, Positive Energy, Inc.*

Grid-tied solar electricity systems: how they work, what they cost, what kind of financial incentives are available. Lots of pictures of different types of homes, systems and mounting options. Also: new solar technology, financing options, solar-ready preparations for new construction and new roofs.

Claudia Pavel works with Positive Energy, Inc., New Mexico's solar electricity professionals with offices in Albuquerque, Santa Fe and Las Cruces. She gives solar electricity presentations to homeowners, large and small business owners, architects, engineers, and builders. She is a commissioner on the Sustainable Santa Fe Commission and a member of the New Mexico First Energy Economy Implementation Team.

☀ **Love Your Batteries: Sizing, Installing and Maintaining an Off-Grid Solar System** (R)

*Saturday, Quad (outdoors), 12:00-1:00 PM
Jonathan Jimenez, Affordable Solar*

How do I size an off-grid system? How can I extend the life of my battery bank? Learn the answers to these questions and how to avoid costly mistakes in system design and installation.

Jonathan is Affordable Solar's Off-Grid specialist having designed over 8,000 residential systems. Jonathan is a true expert in battery maintenance, regularly consulted by both homeowners and large multi-national corporations about off-grid systems. He is recognized as a leading industry expert in solar charge controllers.

☀ **Low- and No-Cost Ways to Lower Your Energy Use: A Guide for Homeowners and Small Businesses** (EE)

*Saturday, Aspen Room, 9:00-10:15 AM, FREE
Matthew Dickens, Los Alamos Dept. of Public Utilities*

Home energy conservation is often thought of as complicated and resulting in high cost improvements,

when in fact conservation can generally be achieved with little or no investment. Using historical consumption trends and readily accessible information available through Energy Star and Water Sense, residents and small businesses can develop successful conservation initiatives today.

Matt Dickens has over 10 years' experience in the field of conservation. Prior to relocating to Los Alamos, Matt worked as a water conservation contractor to the Albuquerque and Bernalillo Water Utility Authority, the cities of Phoenix, Santa Fe and Durango, and many other small communities in the Southwest. Matt currently manages the water and energy conservation program for the County of Los Alamos.

☀ **Medium Speed Electric Vehicles: An Urban Transportation Revolution** (TF)

*Sunday, Elder Room, 3:45-4:45 PM
Dr. Paul J. Watson, Electric Cars of Albuquerque, LLC*

This workshop will explain the Medium Speed Electric Vehicle (MSV) concept and political campaign. It will give an overview of the diverse national, humanitarian and global ecological benefits of electrifying our transportation. It will argue that MSV's (and even robust Low Speed Vehicles) should not be perceived as filling a narrow niche, but a wide one, and that such a transformation in the public's thinking – and consequent buying decisions – would make a major contribution to important ecological and humanitarian goals.

Dr. Paul J. Watson is a member of the research faculty in the UNM Biology Department. His specialty is the evolution of animal and human behavior and psychology. Recently, he established Electric Cars of Albuquerque, which specializes in the retailing of ZENN electric cars.

☀ **NM's Path to a Sustainable Energy Future** (EP)

*Sunday, Cedar Room, 12:00-1:00 PM
Jason Marks, NM Public Regulation Commission*

This presentation outlines a roadmap for transitioning to an electric supply based on sustainable sources available in New Mexico. It covers (1) the technical and economic characteristics of wind energy, PV solar, concentrating (thermal) solar electric, and other renewable resources; (2) the role of transmission; and (3) the various regulatory and policy tools in place to promote customer-owned and utility-scale renewable generation and to encourage energy efficiency. The material will be general but sufficiently detailed to

interest persons with some knowledge of the renewable energy industry.

Commissioner Marks believes the PRC has an important role to play in our state's transition from fossil-fuel dependency to energy supplies that are environmentally and financially sustainable. On the Commission since 2005, he is the sponsor of rules creating diversity targets for solar energy and distributed generation, and has been active in proceedings addressing net metering and incentives for customer-owned renewables, energy efficiency, and greenhouse gas emissions. He is a member of the governing board for the Western Renewable Energy Generation Information System and the steering committee for the Western Renewable Energy Zones project.

☀ **Off-Grid Solar PV Systems** (R)

*Sunday, Elder Room, 10:45-11:45 AM
Allan Sindelar, Positive Energy, Inc.*

This class is for those seriously considering living off the grid using solar PV power. We will discuss the joys and limitations, the design process and load analysis, and the principles and costs of off-grid living. By workshop's end, you will either know it's not for you or be excited to get started.

Allan Sindelar has been designing, installing, and teaching about off-grid PV systems since 1988. He is a NABCEP nationally-certified installer and the founder of Positive Energy, Inc. of Santa Fe.

☀ **Off-Grid Sustainable Living in Rio Rancho: Focus on Living on Harvested Water** (HCW)

*Saturday, Dogwood Room, 1:15-2:15 PM
Carl Axness, Sandia National Laboratories*

This talk will discuss off-grid living in the city of Rio Rancho and will focus on the author's goal of living comfortably with all household water being provided by rainfall. The author will discuss the impact that large scale water harvesting could have on the reduction of pollution in water supply and reducing the expenses associated with arsenic remediation. Changes in water harvesting subsidation are suggested.

Carl L. Axness is employed as a senior technical staff member at SNL. He obtained his Doctorate in Civil Engineering from the Technical University of Catalonia in Barcelona and has Masters degrees in both Hydrology and Mathematics from NM Tech.

☀ **On A Green Career Path? Jobs Education and Training Opportunities in New Mexico** (GJ)

Saturday, Birch Room, 10:45-12:45
Moderated panel discussion. Check our website for details.

☀ **Passive Solar Design, A Holistic Approach to Design Principals and Tools** (DM)

Saturday, Cedar Room, 10:45-11:45 AM
Mark Chalom, Solar Design and Analysis

This will be a beginning-to-intermediate level introduction to passive solar design, which must incorporate various principles to be successful. Different climate zones require different strategies. We will cover basic thermodynamics, siting, insulation and mass, room placement, building system components and various solar apertures. We will explain the benefits and what one can expect in various parts of New Mexico, covering the 11 climate zones and discussing passive cooling, as well as passive heating. Simple useful tools and resources will be shared. Other sustainable technologies can be incorporated to achieve a holistic and synergistic effect.

Mark Chalom Architect, Solar Design and Analysis, is a LEED Accredited Professional. Mark has been designing and developing passive solar designs for 35 years. Mark also teaches solar design at various schools such as the Southwest Solar Adobe School in Los Lunas, NM and the Yestermorrow School in Warren, Vermont. Mark is on the Technical Committee and Advisory Board of NMSEA and is on the Board of the Adobe Association of the Southwest. Mark has written and presented technical papers at national and international conferences such as ASES 2007 and Adobe USA 2006, 2007 and 2009.

☀ **Passive Solar Residential Design and Construction** (DM)

Sunday, Dogwood Room, 1:15-2:15 PM
Mark M. Feldman, High Desert Construction Inc.

In this workshop, Mark shows how to design a passive solar residence given various view, access, and privacy orientations. He discusses how to design and build Trombe walls, as well as passive solar water heating design strategies.

Mark has been designing, building, and living in passive solar homes in New Mexico for 33 years. He has built over 200 passive solar homes. He received a Masters Degree in Architecture from UNM in 1980.

☀ **Renewable Energy Policy Primer for New Mexicans** (EP)

Sunday, Cedar Room, 10:45-11:45 PM
Patrick Griebel, Consolidated Solar Technologies

As an active participant in the legislative and regulatory arena, Patrick Griebel is closely engaged in energy policy issues for New Mexico. Join him as he discusses the latest legislative and regulatory issues that affect renewable energy at the state and local levels. This is a great primer for those who are interested in learning more about energy policy, as well as for those who already have a good understanding of the process. Participants leave the session with the knowledge, tools and resources to stay informed and get involved in the public dialog. Patrick Griebel of Consolidated Solar Technologies is an attorney and active renewable energy advocate.

☀ **Simple Solar Thermal Systems for the Southwest Using Selective Surface Absorbers** (HCW, T/P)

Sunday, Quad (outdoors), 2:30-3:30 PM
Helene Beauchamp, MS, Zomeworks Corporation

Selective surface unglazed flat plate solar thermal collectors can perform as well as, or better than, glazed collectors in much of the American Southwest. A selective surface coating prevents re-radiation, sending more of the sun's heat into the working fluid. Preliminary warm season testing shows that an unglazed selective surface absorber performs 50% more efficiently than a glazed collector in climates with mild to moderate temperatures and high irradiance. Using absorbers that are freeze-tolerant in moderate climates and under low pressure conditions, simple solar thermal systems can be designed and installed to provide domestic hot water year-round and winter space heating.

Helene Beauchamp does R&D at Zomeworks Corporation with an emphasis on simple solutions that promote direct use of renewable energy sources .

☀ **Six Principles of Good Solar Thermal System Design** (HCW)

Saturday, Aspen Room, 1:15-2:15 PM
Bristol Stickney, Cedar Mountain Solar Systems

In this presentation, Bristol discusses the six principles of good solar thermal design as well as how the home owner can apply these principles. This workshop covers all of the ins and outs of solar thermal, from piping and pumping strategies to sizing and heating controls. Bristol also covers solar heat banking in mass

floors, night sky radiant cooling, and energy comparisons and case studies from real-world examples.

With over 30 years of experience in solar heating systems, Bristol Stickney is a well-known authority on solar hydronic heating solutions. During his tenure at the NMSEA, he developed unique control system concepts that optimize the design of solar heating systems. Bristol currently writes a monthly column on "The Six Principles of Good Solar Hydronic Heating System Design", which is published in national magazines such as Plumbing and Heating Contractor, Plumbing Engineer, and Santa Fe's Haciendas: Parade of Homes.

☀ **Solar Cooking 101: How to Make Delicious Meals from Sunlight Using a Solar Box Cooker** (SL)

Saturday, Quad (outdoors), 2:30-3:30 PM
Rose M. Kern, Solar Ranch

It sounds fun – cooking meals with sunlight – but the concept is a little daunting until you actually see how it is done. Rose Marie Kern takes you through the basics of how to set up the oven and aim it, what pots to use, and how to determine cooking times based on sky conditions. The class starts inside with a brief presentation and follows with a food tasting of solar cooked foods!

Rose Marie Kern is the author of the "Solar Chef" cookbook. She is an aviation weather forecaster who combines her knowledge of meteorology and cooking in a way that makes sense to new solar cooks. Past President of NMSEA and originator of NMSEA's Solar Fiesta, she writes for several magazines including the Journal of Sustainability and Countryside.

☀ **Solar Heated Swimming Pools for the City of Albuquerque – An Update** (HCW)

Sunday, Elder Room, 12:00-1:00 PM
Jim D. Palmer, PE, NRG Engineering

This workshop provides an update on system types, sizes, dates, BTUs saved and dollars saved on gas bills. The discussion will be followed by a walk-by tour of the solar system at the Highland High School swimming pool.

Jim D. Palmer, PE, CEM, GBE, LEED-AP, was involved in this project from the conceptual through the construction stages. His engineering background will not inhibit his ability to describe these solar thermal installations and report on their effectiveness.

Summertime swimming pool heating is the most cost-effective use of solar energy.

☀ **Solar Hot Water Systems for New Mexico Homes and Small Businesses** (HCW)

Sunday, Aspen Room, 2:30-3:30 PM
Odes Armijo-Caster, Renewable Energy Industries Association of New Mexico, Sacred Power Corp.

This workshop provides nearly everything that a consumer would need to know for the purchase of a solar hot water system for their home or small business.

Odes has nearly 30 years' experience in the solar industry with hundreds of solar installations including solar hot water, pool heating, hot air heating and solar electric systems. He is the only dual photovoltaic and solar thermal NABCEP-certified installer in the state and has presented dozens of presentations and workshops internationally on solar-related technologies.

☀ **Solar Water Pumping Overview** (HCW)

Saturday, Dogwood Room, 3:45-4:45 PM
Allan Sindelar, Positive Energy, Inc.

A general introduction to home water supply with renewable energy. Basic concepts of head and flow, pump selection, storage, and system design will be presented. This will give you the foundation to intelligently work with a supplier to select an elegant solution for your own application.

Allan Sindelar has been designing, installing, servicing and teaching about PV systems since 1988. He is a NABCEP nationally-certified installer and the founder of Positive Energy, Inc. of Santa Fe.

☀ **Ten Things To Do BEFORE You Go Solar – Sorry, The Electric Stove Has Got To Go!** (EE, R)

Saturday, Aspen Room, 2:30-3:30 PM –and– Sunday, Aspen Room, 1:15-2:15 PM
Ryan Wallace, Affordable Solar

Learn how \$1 spent on energy efficiency can save you \$5 when installing solar power. This workshop will show you how to prepare your home for installing solar power. Learn about many low cost ways to save thousand of dollars on your solar installation.

Ryan is Affordable Solar's residential energy conservation specialist. Ryan is a licensed general contractor and NABCEP-certified solar professional who renovated homes across Albuquerque with dramatic

increases in energy efficiency. He specializes in education about free and low-cost methods to reducing power consumption and maximizing solar investment.

☀ ***The Most Affordable Road Map to Zero Energy Home Design*** (DM, EE)

Saturday, Cedar Room, 12:00-1:00 PM
Joaquin Karcher, Dipl. Ing. Zero E Design

Would you like to be free of volatile energy prices and enjoy unsurpassed comfort in your home? This presentation demonstrates how zero energy works, and what you can expect as a homeowner. Come and learn about this revolutionary and new approach, which is sweeping Europe and the US. Zero Energy is the new Green, and you can now meet your personal climate change goals in an affordable fashion.

Joaquin Karcher was trained in Germany and has been a passive solar designer in Taos for more than 15 years. In recent years, he became involved with the German Passive House Energy Standard and his office has researched and developed this concept for the cold climate of the Southwest. He considers himself a bridge for technology transfer between Germany and the Southwest. He teaches the art of deep energy savings to students, the building industry and government officials.

☀ ***Transition Initiatives: Moving Communities from Oil Dependency to Self-Resilience*** (SL)

Saturday, Dogwood Room, 12:00-1:00 PM
Zaida Amaral and Maggie Seeley, Transition U.S.

Learn about this positive, community-building response to the energy, climate and economic crises – transitioning from our oil dependency to a vibrant, healthy life style. This workshop will guide you through the 12 ingredients of the Transition Movement and lead you through experiential network exercises that will inspire you toward creating a Transition Initiative in your town, community or neighborhood.

Zaida Amaral is an environmental architect, ecovillage designer, community builder and educator. As Director of Ecovillage Design Southwest in Albuquerque, she premiered the UN-certified Gaia Education curriculum in the United States in 2007. As principal of Resonance Design, she also uses feng shui and holistic design to create sustainable sacred spaces for a variety of individual, commercial, and community clients. She and Maggie are certified Transition trainers.

Maggie Seeley consults with clients on incorporating the Triple Bottom Line (people: social equity; profit: economic prosperity; and planet: ecological responsibility) in their business decision-making. She is a community activist in New Mexico about water issues, micro credit and community building and is a citizen facilitator. Maggie teaches in the Sustainability Studies Program at UNM.

☀ ***(Truly) Affordable Housing – from Tiny Houses to Ecovillages*** (DM)

Saturday, Elder Room, 10:45-11:45 AM
Jeron Smith, Lasya Design Group

Lasya Design Group has been pioneering new green alternative building materials and methods over the past five years. Learn what we have been doing with laminate construction, Green SIPS panels, and low cost solar to make unique tiny houses that are elegant and affordable by design. Our current project is a Green Art Studio, Solar Cabin, or Office Space that meets the newest 2009 IBC building code for detached accessory structures. This structure will evolve into a larger unit for our planned ecovillage in the Taos, NM area.

☀ ***(Truly) Sustainable Vegetable Gardens*** (SL)

Sunday, Cedar Room, 3:45-4:45 PM
Laurie Lange, Botanicarts, the Bee Collaborative

Many of the gardening practices traditionally used in southwestern home gardens are not sustainable. This class will turn your ideas about how to grow vegetables inside-out. Starting from the principles in the 1985 classic, *How to Grow More Vegetables*, we will explore how to apply the bio-intensive techniques outlined there and expand on them with adaptations for our arid climate. Learn how to grow a garden with the lowest possible impact on the planet, while producing a significant proportion of your nutritional needs, not just in the summer, but year-round as well.

Laurie Lange is a landscape designer, naturalist and natural builder who has been creating an off-the-grid residence and wildlife sanctuary for the past five years. She is co-founder of the Bee Collaborative, working to establish an outdoor classroom and habitat for bees and other beneficial insects under a grant from the Fish and Wildlife Service.

☀ **Understanding LEED for Homes** (DM)

Saturday, Elder Room, 1:15-2:15 PM

J. Stace McGee, LEED AP Homes, Green Insight and EDI

This presentation is a basic overview of the Leadership in Energy and Environmental Design (LEED) for Homes program. Topics discussed include these: who is the USGBC, what is LEED, background of the program, what types of projects are eligible, how existing homes work within the program, the what and why of LEED for Homes, how LEED for Homes works, the typical cost of registering a project, and what's next.

Stace McGee is a principal at EDI and one of the first in the nation to acquire the LEED for Homes Professional Accreditation. He is Chair of the USGBC West Regional Council and was a founding member of the NM USGBC. He has been instrumental in the adaptation of the LEED rating system in various communities across the nation and has given numerous presentations to advance the practice of green building.

☀ **Understanding PNM's Solar PV Programs: Net Metering and REC Purchases** (R, F)

Saturday, Aspen Room, 12:00-1:00 PM

Frank Andazola, Anthony Bueno, Jody Karp, PNM Solar Energy Program

Put the power of the sun in your pocket while you protect the environment. PNM will present an overview of interconnection of renewable energy to the grid. Now is a great time for this with 40% in Federal and State tax credits and PNM's Small REC Purchase Program.

Frank Andazola is a Program Manager for PNM's Renewable Energy Department. As an electrical engineer, Frank's previous jobs included electric and gas design of industrial, commercial, and residential projects for PNM. Anthony Bueno, Electrical Engineer, is also a Program Manager for PNM's Renewable Energy Department. His previous jobs included system engineering focusing on fault/load/protective devices of the distribution grid. Jody Karp is the project administrator for PNM's solar photovoltaics program. Her previous roles at PNM include regulatory, strategic planning, and CEO Aide.

☀ **What's Your Solar Payback? Rebates and Credits** (F)

Saturday, Cedar Room, 1:15-2:15 PM –and– Sunday, Elder Room, 1:15-2:15 PM

Nick Babic, Affordable Solar

How long will it take to pay off my system? How do I take full advantage of the federal and state tax credits? Get the answer to these questions and more from an expert in solar finances and payback.

Nick Babic has designed hundreds of systems from 1 kilowatt to 5 megawatts. Babic has a degree in Aerospace Engineering and has been in the solar industry since 2004. Nick tracks Federal, State, Local, and Utility rebate and tax programs to create return on investment analysis for residential and commercial solar installations.

Technical/Professional Sessions (Sunday Only, Birch Room):
Early Bird Sessions

☀ **Using Generators in On-Grid and Off-Grid Home Systems** (T/P)

Birch Room, 9:00–9:45 AM

Allan Sindelar, Positive Energy, Inc.

This presentation will focus on the role of a backup generator in a home PV power system, both on-grid and off-grid. Topics will include selection, features, sizing, and integration. A feature article on this topic in the June-July issue of Home Power Magazine, authored by the presenter, will serve as the basis for discussion.

Allan Sindelar has been designing, installing, servicing and teaching about PV systems since 1988. He is a NABCEP nationally-certified installer and the founder of Positive Energy, Inc. of Santa Fe.

☀ **High Mass Solar Floor** (T/P)

Birch Room, 10:00-10:45 AM

Robert Stout, Southwest Solar Design

Learn about a high mass solar floor, how it's constructed and how it can save energy in a home. Using real-world examples, Robert will demonstrate how much of the "thermal" performance of these houses is under the 5" slab and how the use of a second layer of radiant tubing can assist a ground source heat pump.

Robert Stout has over 30 years' experience designing and building. With a five-year architecture degree

(specialization in solar), a three-year engineering degree and a six-month tenure in Denmark studying co-housing, Robert Stout has a wealth of knowledge to share with Solar Fiesta participants.

Track I: 10:45-12:45 AM Session (in time order)

☀ *The MicroFactory: Efficient Small-Scale Production* (T/P)

Patrick Gallagher, Solar Automation

This presentation explores the realities of "distributed manufacturing" in solar photovoltaic module production. Can mom-and-pop enterprises compete with giant factories and off-shoring? Learn about new tools and methods for small-scale photovoltaic module production.

Patrick Gallagher is a mechanical engineer involved in manufacturing equipment and process design and development. Mr. Gallagher designed and built the world's first automation equipment for solar cell soldering 30 years ago and now operates Solar Automation Inc., based in Albuquerque, New Mexico.

☀ *Surprise! Things We Didn't Expect* (T/P)

Randy Sadewic, Positive Energy, Inc.

Join Randy Sadewic as he shares information he's learned in the field from his solar photovoltaic installations. A must for installers, Randy discusses his surprising findings from shading analyses and the impact of orientation on a solar photovoltaic array's output.

Randy Sadewic is NABCEP-certified PV Installer and licensed electrician.

☀ *Two-Axis Tracking for the Price of One* (T/P)

Kevin Tan, Zomeworks

From the Earth's perspective, the sun revolves predictably about the polar axis and adjusts for seasonal declination. We are not trying to follow aircraft, incoming projectiles or communications satellites, and the complexity needed to follow them is not necessary to follow the sun. By integrating the universal joint into a single-axis tracking design, we can accomplish accurate two-axis tracking.

Kevin Tan currently works for Zomeworks providing technical support for PV racking, as well as CAD drafting and design, and R&D projects.

Track II: 1:15-4:45 PM Session (in time order)

☀ *Integrated Energy Design Towards Net-Zero Building* (T/P)

Matt Higgins, Environmental Dynamics, Inc.

Attendees will gain a solid understanding of the discipline of energy and lighting modeling – also called performance modeling. Matt shares his experience and provides real-world examples of performance modeling, including analysis of component assemblies, architectural elements and building systems. With a focus on integrated design in the southwest, Matt explains how to create a model that informs design decisions specific to LEED objectives and serves as an analytical tool for life-cycle costing and energy reduction. Through case studies, Matt bridges theoretical and practical, and illustrates how to manage model output data to reflect actual conditions.

Matt has been a LEED Accredited Professional since 2006 and was the first in New Mexico to become an ASHRAE High-Performance Building Design Professional in 2008. An employee of EDI, Matt has worked on over 30 projects applying for various levels of LEED certification. Matt's expertise is in sustainable master planning, technical daylight and energy modeling, and high performance building design.

☀ *A Survey of Energy Performance Software* (T/P)

Baldwin Burr, TechKnowledge

This talk will present a survey of current residential and commercial building energy performance analysis software. The range of software tools is extensive, from the four-input online Home Energy Survey (HES) to sophisticated input intensive hour-by-hour simulations such as eQUEST, Energy-10, and Energy Plus. Programs will be evaluated for strengths and weaknesses, user knowledge levels required, appropriate uses for the software and issues such as cost and availability.

Baldwin Burr has more than 30 years of experience in energy conservation procedures as well as teaching and training. Mr. Burr has held state Energy Auditor certification in both New Mexico and Colorado and has performed hundreds of energy audits. He has been a faculty member at several colleges and was Teacher of the Year at the UNM Valencia Campus in 1998. Mr. Burr has managed technical training programs for several leading organizations. Baldwin Burr is a

member of the New Mexico chapter of the Association of Energy Engineers and the U.S. Green Building Council.

☀ **Statements of Work: A Legal Perspective** (T/P)

Colin Adams, Colin L. Adams Law Offices

A must-attend for any business owner or project manager, this technical session will provide guidance for drafting a project's statement of work that won't leave you (or your customers) high and dry. Attendees will learn the common pitfalls and "gotchas" many business owners and project managers experience when writing a statement of work, including buzz

words, terms of art, acronyms and abbreviations. In this informative and engaging workshop, technical and professional audiences will learn how to avoid ambiguity and maintain consistency for the benefit of their customers and their projects.

Colin L. Adams is an attorney with offices in Albuquerque. He maintains both a commercial transactional practice and a computer and information technology law practice. He has extensive experience in advising and representing clients in the drafting and negotiation of statements of work and related documents for many different kinds of projects. ☀