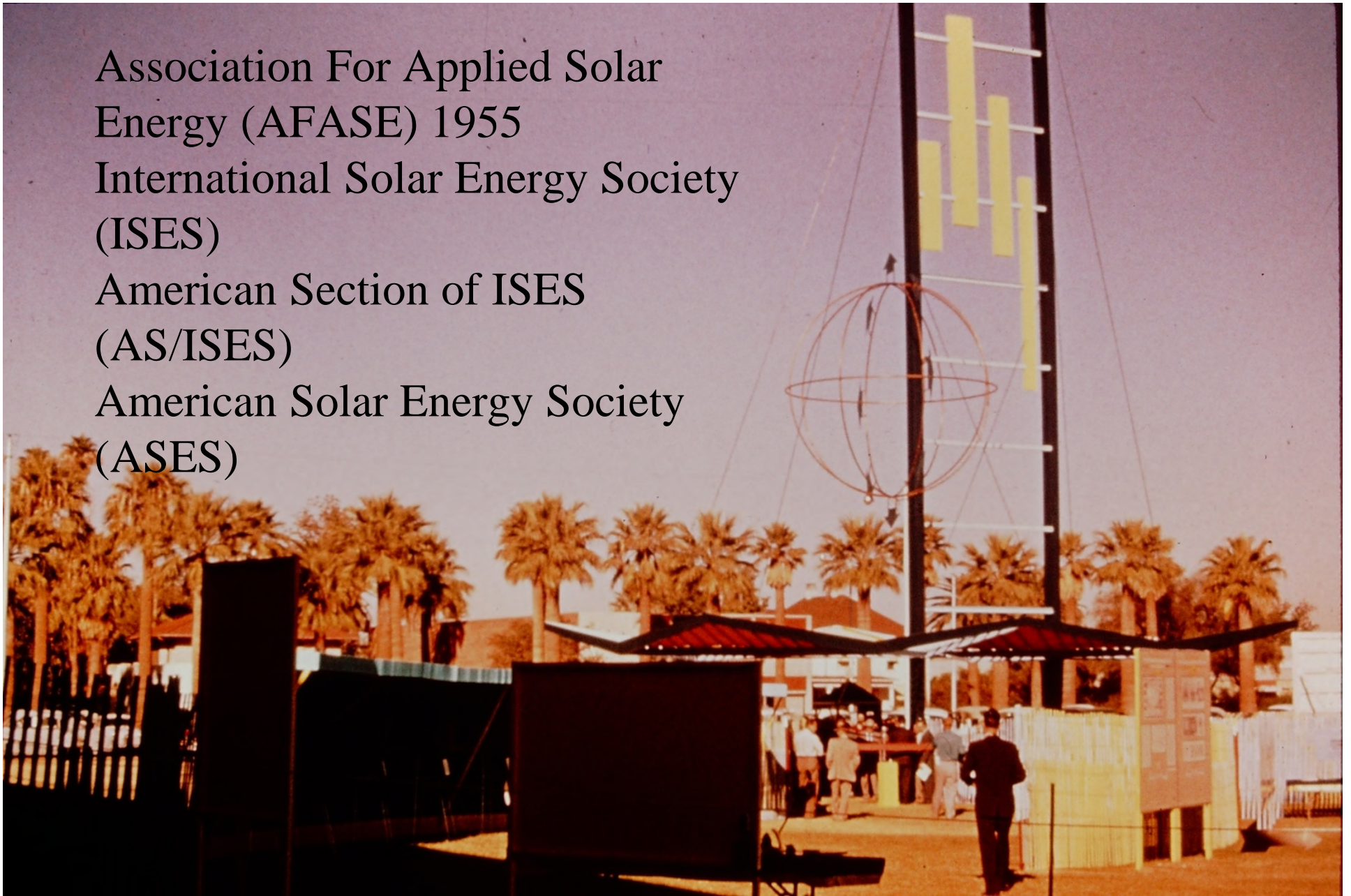


# **Sharing The Sun: 40 Years Later: Why ASES Has Been (And Is) Important**

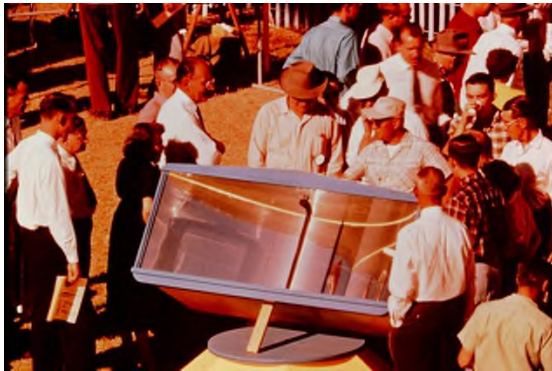


Association For Applied Solar  
Energy (AFASE) 1955  
International Solar Energy Society  
(ISES)  
American Section of ISES  
(AS/ISES)  
American Solar Energy Society  
(ASES)

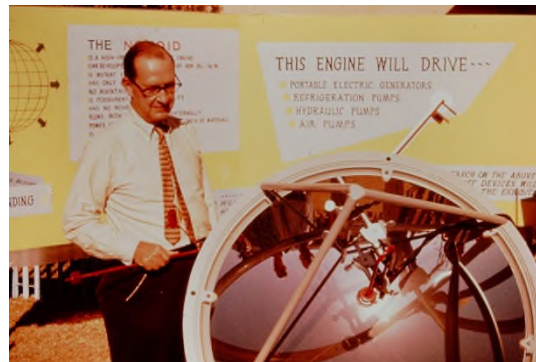


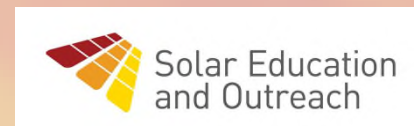


# AFASE World Symposium on Applied Solar Energy (Tucson) & Exhibition (Phoenix): 1955



- To gather, compile, and disseminate information relating to solar energy
- To foster research and education in fields related to solar energy
- To encourage the expansion and development of the applications of solar energy





# **ASES Technical Divisions**

## **Solar Buildings Division**

**Chair: David Panich**

## **Solar Thermal Division**

**Chair: Ron Gehl**

## **Sustainable Transportation Division**

**Chair: Lucas Dixon**

## **Wind Division**

**Chair: Trudy Forsyth**

## **Resource Assessment Division**

**Chair: Jan Kleissl**

## **Clean Energy and Water Division**

**Chair: Veera Gude**

## **Energy Economics Division**

**Chair: Bill Ellard**

## **Sustainability Division**

**Chair: David Comis**



# One Journey of 40 years with ASES

## Donald E. Osborn: ASES

- Joined ASES about 1972, AS/ISES 1975
- First professional solar paper presented 1976 at AS/ISES Conference
- He has served numerous terms as a member of the Board of Directors and Chairman of the Policy Committee of ASES
- Osborn was the Chairman of Arizona Solar Energy Association - 1979/1980/1985 (served on Board 7 years)
- General Co-Chairman of AS/ISES (ASES) 1980 Annual Conference, Chairman
- Author of over 125 solar and energy publications (26 through ASES/ISES).

Osborn was awarded in 2000 the *Charles Greeley Abbot Award* by the [American Solar Energy Society](#) (ASES) for his “*persistent and effective contributions to the many fields of solar energy.*”

Osborn is a Fellow of the American Solar Energy Society.



1975 to 1977	<b>Research Engineer - Helio Associates, Inc;</b> <b>Research Engineer - Optical Sciences Center, University of Arizona</b> Fixed Mirror Distributed Focus" project, photothermal power plant design low temperature solar collector grain drying simulation modeling Solar insolation and climatology data base interpretation thin film stacks applied to photothermal and photovoltaic Tower Reflector" photothermal project	Photothermal Low & High Temp
1977 to 1981	<b>Associate Director and Solar Engineering Manager - Arizona Solar Energy Commission,</b> <b>Director of Western Sun-Arizona office</b> Technical analysis, design and review of solar and energy proposals General Co Chairman of Solar Jubilee, 1980 ASES Annual Meeting Arizona Solar Legislation Package Passive Design Handbook, Class "B" Passive Monitoring project	Passive Photovoltaics Photochemical
1981 to 1991	<b>Director and Senior Research Specialist - Solar and Energy Research Facility, U Arizona</b> conducted RD&D programs in areas of solar thermal, photovoltaics, photochemistry, materials, passive solar design, and energy efficiency/management Spectrally Selective Beam Splitters Applied to Thermally Decoupled, Combined Quantum /Thermal Conversion in Concentrating Solar Systems Bi-Desiccant Solar Cooling System Arizona Solar Design Homes Class B Performance Monitoring Project Solar Thermal Water Reclamation and Toxic Waste Destruction 3 KW Thin Film PV Demonstration and Test Facility Membrane Concentrators for Advanced Solar Dynamic Power Systems in Space Photochemical Generation of Energetic Radicals for Processing Lunar Materials Graphite Fiber Composite Solar Concentrators Grey Mountain Solar Pond Monitoring Project	Solar Cooling Legislation & Incentives DAS & Monitoring
1991 to 2002	<b>Superintendent of Renewable Generation and Manager of SMUD Solar Program,</b> <b>Sacramento Municipal Utility District (SMUD)</b> Sustained orderly development and commercialization of PV and solar domestic water heating SMUD PV Pioneer Program PVUSA (PV for Utility Scale Applications) PV Economics and Markets Net Zero Energy Home Builder's Program	Concentrating Systems NZE Homes
2002 to present	<b>Partner &amp; President, Spectrum Energy Development Inc (SEDI)</b> PV engineering, procurement and construction (EPC) company Commercial, Industrial, Affordable Housing, Governmental buildings, Schools, and Agricultural Applications.	PV and Utility Economics

**ASES/ISES PUBLICATIONS (26 of over 125)**  
**Donald E. Osborn**

**I. Peer Review Journals, Books, Handbooks and Chapters**

Utility Applications

Donald E. Osborn, "Using Solar Energy at the Sacramento Municipal Utility District", Solar Today, Vol 6, No 4, American Solar Energy Society, July/Aug 1992.

SDHW

D.E. Osborn, C.S. Murley, and D.E. Collier, "Sacramento Municipal Utility District: Solar Programs", SunWorld, International Solar Energy Society, Vol. 19, No. 3, September 1995.

DGPV

Donald E. Osborn, "Photovoltaics", Chapter 2 in Solar Energy: Today's Technologies for a Sustainable Future, American Solar Energy Society, July 1997.

CSPV

Donald E. Osborn, "Sustained Orderly Development and Commercialization of Grid-Connected Photovoltaics: SMUD as a Case Example", Advances in Solar Energy XIV, American Solar Energy Society, 2000.

**II. Proceeding Papers, Technical Reports and Other Publications**

Low Temp  
photothermal

Donald E. Osborn, Aden B. Meinel and William T. Beuchamp, "A Solar Collector Modeling Technique for Grain Drying Application," in Sharing the Sun - Solar Technologies in the Seventies, Vol. 7 (International Solar Energy Society, Winnipeg, Canada, August 1976).

Donald E. Osborn, "Spherical Concentrators for Solar Power Production," invited paper presented at Tucson Solar 77 - ASEA meeting, March 5, 1977, University of Arizona.

High Temp PT

Cynthia S. and Donald E. Osborn, "Arizona Model Solar Programs Catalogue," published by Arizona Solar Energy Commission for Arizona Solar Energy Association, First Edition, November 1979; Second Edition, June 1980.

Public  
Education

Donald E. and Cynthia S. Osborn, "ASEA Model Solar Projects Catalogue - A Networking Tool," Proceedings, 1980 AS/ISES Annual Meeting - The Solar Jubilee, June 1980.

Donald E. and Cynthia S. Osborn, "Tracking State Solar Projects: The Arizona Experience," Invited Paper for Progress in Solar Energy, American Solar Energy Society and Solar Energy Research Institute, June 1982.

M. A. C. Chendo, D. E. Osborn, and M. R. Jacobson, "Spectral Characterization of Some Heat Transfer Fluids for Hybrid Energy Conversion," ISES Solar World Congress 1987, Hamburg, West Germany, Paper No. 2.3.17, Proceedings, September 1988.

Concentrating Systems

Advanced Systems



## Photochemical

Donald E. Osborn, et al., "Solar Thermal Water Reclamation and Toxic Waste Destruction in the Southwest," ASES Solar 88, June 1988.

Donald E. Osborn, "Design, Monitoring and Performance of a 3kWe PV Facility," ASES Solar 89 Proceedings, June 1989.

## Monitoring & Analysis

Donald E. Osborn, "Monitoring and Performance of a 3kWe PV Facility," American Solar Energy Society (ASES) Solar 90 Proceedings, March 1990.

Clifford S. Murley, Donald E. Osborn and P. Ross Gorman, "SMUD's Solar Domestic Hot Water Incentive Program", ASES Solar 93 Conference, April 1993.

C.S. Murley and D.E. Osborn, "SMUD's Residential And Commercial Solar Domestic Hot Water Programs", ASES Solar 94 Conference, June 1994.

C.S. Murley and D.E. Osborn, "SMUD's Solar Domestic Hot Water Program", ASES Solar 95 Conference, July 1995.

H. Wenger, T. Hoff, D. Osborn, "A Case Study of Utility PV Economics", Solar 97 Conference, American Solar Energy Society, April 1997.

Donald E. Osborn, "Commercialization of Utility PV Distributed Power Systems", Solar 97 Conference, American Solar Energy Society, April 1997.

Wenger, Howard; Hoff, Tom; and Osborn, Donald; "A Case Study of Utility PV Economics"; Solar 97 Proceedings, American Solar Energy Society, 1997.

Donald E. Osborn, "Putting the Sun To Work in Sacramento", Solar Today, May/June 2000.

## SODC

Donald E. Osborn, "Sustained Orderly Development and Commercialization of Grid-Connected Photovoltaics: SMUD as a Case Example", Forum 2001 - Solar Energy: The Power to Choose, ASES, Washington, DC, April 2001.

Osborn, D.E., Keesee, M., "Bringing The Solar Advantage To New Home Developments", ASES Solar 2002 Conference, Reno, NV, June 2002.

## NZE Homes

Donald E. Osborn, "Overview of Amorphous Silicon (a-Si) Photovoltaic Installations at SMUD", ASES Solar 2003 Conference, Austin, TX, June 2003.

Osborn, D.E., Weinberg, C., "Key Utility Contributions to the US Grid-Connected PV Market: The PG&E and SMUD Solar Experience", ISES Solar World Congress, August 2005.

Osborn, D.E., Aitkin, D., Maycock, P., "Government Policies To Stimulate Sustainable Development Of The PV Industry: Lessons Learned From Japan, Germany And California", ISES Solar World Congress, August 2005.

## Solar Materials

**Donald E. Osborn, "Long Term Field Performance of Amorphous Silicon (a-Si) Laminates in Large Scale Photovoltaic Deployments", ASES Solar 2009 Conference, Buffalo, NY, May, 2009.**

- Ability to be active in such a wide variety of solar technologies and applications due in no small measure to interdisciplinary nature of ASES
- ASES provided the opportunity to make connections with and interact with colleagues and mentors from variety of fields, locations and backgrounds
- ASES provided the network of education and public information resources
- ASES provided a Haven that nurtured a young student, expanded the horizons of a developing professional, and re-energized an established technologist
- ASES always expanded ones knowledge base and vision and was critical to on-going growth as a solar professional
- ASES has provided that home of colleagues and good friends



For 40 years...  
ASES has been there for me. Helping my professional growth and broadening and enhancing my technical abilities while providing the fellowship needed to carry on!





# It's the Connections and Interconnections Just One Example

MY CLAIM: ASES is responsible for today's PV market explosion:

National Solar Market: 21.8 GW



California Solar Initiative: 2002-2006-2016 13.2 GW



SMUD PV Pioneers Program (SODC): 1992-2002 10MW



ASES Connections & Interconnections Provided the Foundation

Don Osborn / Don Aitken / Steve Strong

Howard Wenger / Tom Hoff / Carl Weinberg Team

MANY OTHERS IN ASES

*"Sometime early in the 21st Century, the cost of photovoltaic energy is going to cross over with fossil fuels. I think it will be known as the Solar Century. When people look back on the 21st Century, they will say the Solar Century started in Sacramento."* Ed Smeloff, 2000, Pace University National Energy Policy Project and former SMUD Director

Other

ASES

Voices

## **Richard Komp, Skyheat Associates**

I first signed up as an ASES member in 1964. My mentor and PhD advisor, Dan Trivich was one of the scientists who helped start ASES and ISES at the Tucson Arizona conference in 1955 and when I finally got my PhD and had a good job at Xerox Corp. with a salary, I joined. I admit to not doing much in connection with ASES for a number of years but by 1975 I started going to ASES events. When I started Sunwatt Corporation to sell the PV-Thermal hybrid modules, I started exhibiting the modules at ASES conferences. I was living in southern Indiana where hardly anybody cared about solar energy (although it works very well in that climate). After we moved to Downeast Maine, where solar energy was appreciated, I was asked to become the president of the Maine Solar Energy Association (MESEA, which was already an ASES Chapter) in 1989. I have been active in ASES activities ever since and have been to most of the annual ASES meetings ever since.



Network

Interdisciplinary  
Interaction

Varied  
Backgrounds

**John Duffy**, Prof. Emeritus, solar engineering, U Mass Lowell

American Solar Energy Society (ASES): Member since 1981; Board of Directors of ASES, 1988- 1990, 1992 - 1994; Board Passive Architecture and Construction Division 1986- 1989; Technical Program Chair 1988 Passive Solar Conference); First chairperson of Ethics and Member Concern Committee (1991-1993).

***ASES has always meant to me a valuable network of dedicated solar professionals from all kinds of backgrounds. It has always supported interdisciplinary interaction, a rare feature. It seems that most of the real pioneers in solar were active members through the years.***



### Peter L Pfeiffer

My involvement with ASES goes way back to grad school days by reading an article in Solar Today in 1979 or 1980 that turned me on to the ground-breaking work of Dynamic Energy Response Of Buildings. My first talk I gave at an ASES conference was in Portland, Oregon in 1987. That exposure I received there and then really helped launch my architectural practice specializing in "high performance". ***Thanks much to the encouragement I received from[ASES] folks like Polly Cooper, Ken Haggard, Doug Kelbaugh, etc I made a pretty nice practice out of specializing in what we used to call "environmentally tuned-in (green) architecture". ASES [needs to be] professional association of those interested in and pioneering designing and building buildings that deal effectively with the SUN. ... they can re-energize themselves b/c of their wonderful legacy!***



Encouragement  
& Mentoring

Professional  
Association

Re-energize

Educate Public

Know-How

Combine  
Resources

Educating Industry

### Mary-Margaret Jenior

**I looked to ASES as a means to make emerging know-how and technology known to those likely to be the "early adopters."** And through them to gradually see wider spread use. To some extent that did /is happening. When I began to see works like net energy buildings and zero energy buildings in *The New York Times* business section, some impact must be occurring. Thus, I did provide DOE funding to support the Passive Solar and ASES conferences, often through NREL. And, encouraged the researchers to participate. I still think **ASES is still a valuable means of educating industry of advancements in know-how and technology.** And, importantly, getting DOE back into R/D. Industry experiences and limitations emerging from its use of technologies need to be fed back and the required research funded.

### John Avenson

I learned of ASES in the summer of 1999 as a result of monthly meetings for CRES (Colorado Renewable Energy Society) which was formed in 1996. I found CRES as a result of visiting the NREL visitor center and talking to the volunteer CRES worker. **[Today's students] are not aware of "energy Societies"** - YET they build Solar Decathlon Homes. ASES should be right at their side with enough money and people to provide some value. I have bought them Pizza lunches many times in the past decade. I am a life member of both ASES and CRES and a member of Colorado Green Building Guild and a member of PHIUS.org. These groups hold independent educational meetings that, if well socialized could all join together to share their Speakers/Presenters to larger audiences.

### Bruce R. Brownell

I too am an old timer having done a passive home sub-division in 1965. I was the speaker at the original earth day (4/1/70) at the Flushing Meadows World Fair site and spoke briefly about passive solar and that it soon would grow in popularity to a huge roar from the crowd. I joined NESEA (1973?) when finding about a group in VT that was interested in passive solar after spending 10+ years alone in my desire to have everyone live in a passive home. Awarded the "Passive Pioneer Award" in 2013  
***My opinion is that the lacking ingredient to the future of passive solar is information. The public is ignorant, solar is PV if you are younger and credibility is lacking [for non-PV].***

Information

More Than PV

Group Interest

Dale N Bickenbach

What you got out of ASES decades ago was the science, the processes, and experiences of others trying to nurture a product. ***Project what science and research is needed, and how policy needs are being developed.*** Policy is what I last recommended to the ASES staff. Big companies will promote a lobbying agency. There is a lot of work to be done to change the electrical structure of the planet.

Identify  
R&D Needs

Policy

Breadth of ASES  
Conferences

David L. Comis

I started attending ASES conferences in 2003 (Austin, TX), while I was still in the military. I had been convinced that renewable energy would be of value to the soldier in the field as it would reduce the need for fuel shipments. It took a blast from a 3 star Marine Corp General to get the ball rolling. I have always used the ASES conference as a learning experience, attending as many lectures as I could. ***I find that the breath of the ASES conference is vital to my education, touching on passive design, photovoltaics, solar thermal, CSP, etc.*** It sets me apart from many others, as I am able to intelligently address areas outside of one particular technology. In addition, on occasion I've needed to call friends from ASES to gather detailed information (or get an educated opinion) on a topic where I was weak. As such, some of the networking has helped.

### James Serene

I am a life member and can't remember exactly when I joined. I think in the early 1980's. I am not in the solar business. I have an **environmental ethic**. At that time, solar was only solar thermal. And yet, I was so enthusiastic that the world would embrace such a simple technology to heat water and homes so efficiently, and let us cut way back on fossil fuel use. Since there are so many solar companies now, a **political effort** by ASES could get it back on track. To fight the power giants in Colorado and other states, most solar companies would be glad to donate to a tough, organized, political group with some muscle. ASES has the reputation and history, it just lacks the muscle. Show some muscle, some influence, and donations will come.

“Political” effort

ASES was my “home”

### Helen J. Kessler

I probably joined ASES in 1976 when I went to the first Passive Solar conference in Albuquerque. I didn't speak there, but I did present a poster at the next conference in Philly and spoke at just about every Passive conference thereafter until 1983 or 84. **These conferences were truly formative for me and allowed me an opportunity to present our work and meet people from all over the world. What I learned at the ASES conferences is still relevant to my work today. ASES was my “home” in the early days of passive solar design and I felt very much a part of the movement. It still appears to be the place to learn about cutting edge solar systems, research, policies, etc, although the emphasis on passive design seems to have waned significantly since those early days. Even so, what is great about ASES today is that it is not about one technology; it is about all solar technologies from PV to solar thermal to building design and more. It covers a wide range of topics relating to technology, policy, implementation, education, etc, for people with a wide range of interests. For those interested in solar and renewables, ASES still seems to be the best overall place to learn and connect.**

Great place for  
students

Exposure &  
Networking

Formative

Multi-  
Technology

### Richard Perez

ASES: for a long time it was the only home for SOLAR energy in the US... although many tried to change that to RENEWABLE along the way (glad they did not succeed.) This was a natural place for me to present my research. First conference: 1982, as a student -- not a good year for ASES -- but I got hooked nevertheless. **ASES conferences are still a great place for students and young professionals, because it is still relatively easy to get a speaking slot -- i.e., enhanced exposure and networking opportunities -- if the work has merit. The current tie-in with Intersolar -- where speaking is by invitation only - is a good thing.**





**Steve Strong, Solar Design Associates**

My initial involvement with ASES started with what was then the New England Solar Energy Association (NESEA) - now the Northeast Sustainable Energy Association. I joined when I started SDA and served on the Board for multiple terms in the early 'formative years'. My first ASES experience was the ISES / ASES conference in Los Angeles in 1975. I subsequently became a frequent presenter at ASES, served as chair or co-chair of NESEA conferences. In 2001, ASES honored me with the Charles Greeley Abbot Award and subsequently elevated me to a Fellow of the Society.

***All along the way, ASES was indispensable - as a guiding light and key source of knowledge in policy, practice and, most importantly, purpose. ASES provided me and my contemporaries with the necessary "Courage of Conviction" that was essential to embarking on a new and largely uncharted career path to move renewable energy into the mainstream. We were all learning as we forged ahead into what was then largely unknown territory with the immodest goal of nothing less than changing the world – as that was what was needed. Thank You ASES!***



Indispensable

guiding light

Courage of Conviction

key source of knowledge in policy,  
practice and, most importantly, purpose

immodest goal of nothing less  
than changing the world

**Donald Aitken**, Donald Aitken Associates, San Jose State University, . Union of Concerned Scientists, WSUN



I gave my first (four) papers at the same ASES/ISES conference that Don Osborn did in Winnipeg in 1976, and that was the beginning of a 34-year period of active participation in ASES affairs. To start with, because my first four papers were all on passive solar, I was immediately asked to be the Chairman of the Passive Division! I became Chairman of the Board in 1983 and again in 1993-94. In 1996 Barbara Harwood and I created the "Spirit and Sustainability" sessions, which became fixtures in the ASES conferences. In 1997 I was awarded the Charles Greeley Abbot Award by ASES, and became a lifetime ASES Fellow.

***Through all of those years ASES was my anchor in solar energy—the people, ASES, the conferences. It added great meaning to my personal satisfaction and professional interests in solar energy, and I always learned much in the annual conferences and in the opportunity to talk to colleagues during those events.***

Through all of those years ASES was my  
anchor in solar energy

personal satisfaction

professional interests in solar

opportunity to talk to  
colleagues



## ASES My Tribe

## environmental benefits of solar

**Jim Augustyn**, Solar Engineer and Author of the Solar Cat Books

1975 - Joined NCSEA (N. Calif Solar Energy Association, a chapter of the American Section of the ISES

*I think it was at some ASES event I heard someone suggest that ASES culture was (to them) like a 'tribe'. ASES was their tribe. Something about that rang true to me then even though something about the notion of tribe was mildly repulsive, even beneath me . . . yet ASES as tribe stuck with me . . . not exactly an obsession, more like unconscious background . . .*

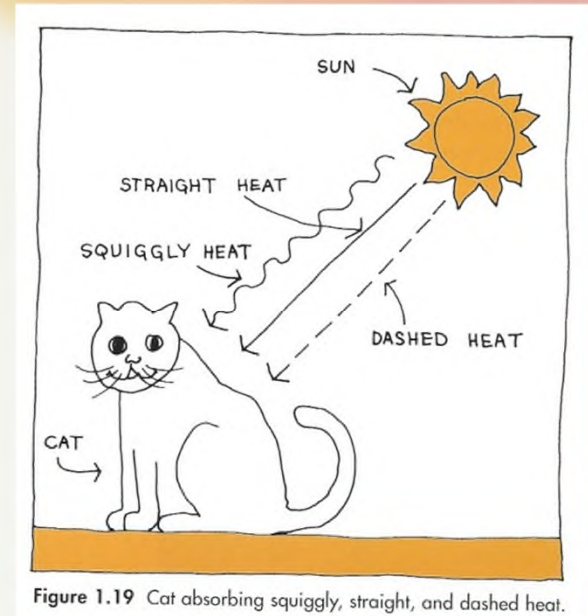
*So I can easily think of ASES as having been my tribe . . . **the extract of larger society from which and to which I drew inspiration, enthusiasm, courage, comfort, shelter and sustenance . . . and to which I gave . . . whatever it was I gave . . . the eternal optimism of the Solar Cat and its gently relentless insistence that humanity return to the strictly solar-enabled development of their origins . .***

*As I started in solar in '75, I recall thinking of energy as the BIG issue I could happily direct my life toward. Solar was this thing to attain in itself . . . nothing was higher more pressing more worthy of doing . . . then (at some ASES conference) in the early '80s I recall a speaker suggest the environmental benefits of solar energy would be the primary driving force towards its adoption . . . I resisted that notion at first . . . being the energy purist I was . . . but that guy was right . . . **solar is part of something bigger . . . so is ASES and ISES . . .***

***. . . its like life . . . the people you meet and come to know, the things you see and hear, the ideas that pop into your head help to make you who you are and will become . .***

inspiration, enthusiasm, courage,  
comfort, shelter and sustenance

eternal optimism of the Solar Cat





# ASES and Expanding the Solar Basis

<http://www.utilitydive.com/news/pg-e-to-close-diablo-canyon-nuclear-plant-replace-it-with-renewables-effi/421297/>

## **PG&E to close Diablo Canyon nuclear plant, replace it with renewables, efficiency, storage**

By Gavin Bade | June 21, 2016



- Sustainable Energy Economics
- Virtual Power Plants with DGPV and Distributed, Dispatchable Energy Storage
- And so much more potential for the next 40 years

*“Solar is more than PV” and more is needed*

- Solar Thermal Power Plants
- SDHW
- Passive Design Concepts for ZNE Buildings

<http://www.greentechmedia.com/articles/read/California-Calls-for-Demand-Response-and-Solar-to-Meet-Aliso-Canyon-Shortfall>

## **California Calls for Demand Response and Solar to Meet Aliso Canyon Shortfall**



Regulators approve millions in new DR spending, and solar industry calls for extending PV program to meet looming energy shortage.

## 1955 to 2016 and Beyond

- To gather, compile, and disseminate information relating to solar energy
- To foster research and education in fields related to solar energy
- To encourage the expansion and development of the applications of solar energy



# Just Do It



- *Knowing is not enough - we must apply.  
Willing is not enough - we must do.*

Bruce Lee

- *Even if you are on the right track, you'll get  
run over if you just sit there.*

Will Rogers



Thank You and



Welcome to the Solar Century

**It's now up to all of us to  
settle the Solar Century**

