

SOLAR 07 - "Is Solar our only Nuclear Option?"

The 45th Annual ANZSES Conference was held last October in Alice Springs. If you haven't attended one of the Society's meetings, you might be struck by the degree of friendship there is amongst the regulars. As one delegate expressed it "I have been attending for three years now, at first I knew no one, now I feel I know everybody".

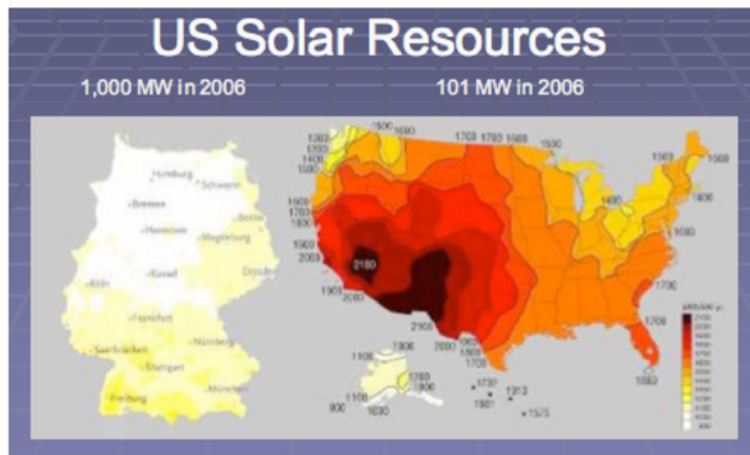
Since the conference in October, there has of course been a significant political change in Australia, and the actuality of Australia signing the Kyoto Protocol now a done deal. There is also hope that Australia will now see the development of a much stronger renewable energy industry.

Howard Pullen, the conference chair described Alice Springs as Australia's "premier solar city". Quite a promotion for a town of under 30,000 inhabitants, but everyone appreciated his sentiment. Mayor Fran Kilgariff was certainly upbeat about utilizing solar energy at the welcome reception. Bush Light are doing great things with community power systems and achieving successes.

The conference theme used the usually obscure fact that solar energy from our Sun is in fact thermo-nuclear energy. Is this our "only nuclear option" the title asks. A fair question to ask if Australia was heading for a nuclear future, but now after a Federal election election, nuclear power is off the agenda.

The conference started on a musical note with local Barry Skipsey and his "red Centre Show" a mix of his excellent photography and abilities as a singer/songwriter. Getting down to business, the conference first heard from Simon Troman from the Australian Greenhouse Office with an overview of the Renewable Remote Area Generation Program, where at 2003, some \$180million had been invested. The program had its peak expenditure in 2005 – 06, and the major expenditure has been in the NT and WA as might be expected. As to what now happens, again, an election result has set a different agenda.

Julia Judd Hamm of the US Solar Electric power Association presented one of the most telling graphics about insolation vs. market:



The country on the left is Germany, apparently not a place that lends itself to solar power. The installed PV figures at the top tell the story. That story is told in one word: policy. In 2006, Germany had 57% of the world's installed PV capacity.

The contrast between the haves and the have-nots was brought into sharp focus by Alex Zahnd, a delegate from Nepal. We in Australia are using the same amount of electrical energy (and often much more) every day as the Nepalese (at least in mountain villages) use in a year. Zahnd took us on tour of the Himalayas, contrasting the scenic beauty with the abject poverty and disease that abounds. Normal lighting and fuel for cooking is derived by burning Jharro (a resin soaked pine). Nepal is the only country in the world where female life expectancy is less than male. Here is a serious indoor pollution problem that can be solved with LEDs, but not without sensitivity to cultural habits and adequate training and education. However, as Zahnd said, the mere installation of solar PV and equipment is not enough. It is an out sight out of mind problem that needs rectifying. Funding equipment and installations is not enough. As Zahnd showed, the systems fail without proper understanding and training. (If you are an engineer with experience, in renewables you are invited to contact Engineers without Borders (www.ewb.org.au/main/) or ANZSES directly and we can direct you to Alex Zahnd's project in Nepal). You might be able to contribute.

Mark Diesendorf addressed the subject of Greenhouse solutions with sustainable energy, placing significant emphasis on becoming more energy efficient. He also argued that wind is not intermittent in large-scale dispersed systems, and for example, at windy sites, about 2600 MW of wind power can substitute for the electricity generation of a 1000 MW coal power station, which can be retired. See elsewhere in this issue for his presentation.

Another "regular" visitor to Australia is Scott Frier, now the Chief Operating Officer of Abengoa Solar. His company operates in the US, Spain and North Africa, using both large scale solar thermal and PV technologies including the PS 10 - a commercial solar thermal tower plant in Seville. He was very upbeat about the prospects for investment and markets for large scale solar thermal.

Steve Shallhorn from Greenpeace called for some strong changes to policies (as they were pre-election). Included were a ban on new coal fired generation plant, a binding renewable energy target of 25% by 2020; surety for investors; stricter efficiency standards for appliances, buildings and vehicles; and \$2billion in R&D support over the next ten years.

As is usual for ANZSES conferences, a very broad range of knowledge and expertise is brought together. Aaron Fyke from Starfish ventures, a venture capital company gave some interesting insights into the rise and fall (and why) of some notable players in the renewable energy field. PV was compared to Fuel Cells. Why is PV succeeding where Fuel Cells are less successful? Both have huge markets, both are successful as technologies. PV, unlike fuel cells, is delivering sales, volume production, few or no infrastructure hurdles, scaleable technology and multiple successful firms. At present, although fuel cells are proven, they fail on several fronts, not least of which is limited infrastructure. One commercialization question

that at times gets less emphasis than it should – is there a need? Without infrastructure, the answer is no.

I daresay that many delegates had never been to Alice Springs before and both conference sessions and some informative field trips gave the opportunity to see not only the solar potential of the region, but also how various groups are developing. “Bushlight” is a stand out organization run as a project of the Centre for Appropriate Technology and funded (now until 2008) by the FaCSIA and AGO. Three aims of the project encompass industry development, emissions reduction and the provision of sustainable energy services to the region. The Bushlight systems range from 3-10kWh/day domestic to community 10 -50kWh/day to bigger hybrid systems. All systems have life expectancies of 20years and built not only to high standards but achieving a consistent product approach. Training is a key issue. Delegates saw the Bushlight HQ and systems demonstrations.

The insolation of the Alice Springs region raises the obvious subject: the solar potential is there in Alice Springs waiting to be fully exploited. If we cannot drive (at least) our fixed energy demands towards solar in Alice Springs, then we have a management problem. Here is one relating to solar hot water systems and misconceptions about them. The Centre for Sustainable Arid Towns has found that despite the solar resource, solar hot water boosters are “on” in many instances when they need not be. It is this attention to detail about what is after managing human behaviour that will bring the Alice closer to a renewable future, and probably featuring solar PV and wind in combination.

At the conference, the present optimism about a “solar” future was not there. Senator Christine Milne presented her “Re-energising Australia” policy and it remains to be seen how far we will move down that particular route in the next few years.

Settings aside the change of politics, Mark Diesendorf’s list of things for ANZSES members to do is listed here in full:

- Discuss the global warming threat and sustainable energy solutions at home, work and in groups to which you belong
- Join a local climate action group and give it information on sustainable energy
- Address meetings of professionals and community groups
- Write letters and articles for publication
- Do radio interviews and respond to talkback radio
- Write to politicians in your professional capacity

Finally, and thanks to Solar Systems, the Saturday post conference tour was an absolute highlight. Two buses (it was very popular) took the 200km round trip tour to Hermannsburg (Ntaria) to see the solar power station built on a hill above the town. The plant at a rated 192kW is the smallest of three such power stations in the NT (more details [here](#)). These dish concentrating PV plants work in conjunction with diesel plants and use adjacent sewage treatment plant waste evaporation ponds

to reject waste heat. The systems run at 500 times sunlight concentration. They are also three times more efficient than standard solar panels. This means their output is 1500 times greater than the same area of standard flat plate PV modules.

The trip also took in some of the scenic beauty of the McDonnell Range and its gorges. All in all a fitting conclusion to a special conference.

Oh, and the dinner was special – being set under the stars. Very different and original.

And now - [Solar 08](#) – will you be in Sydney?

Bill Parker December 2008