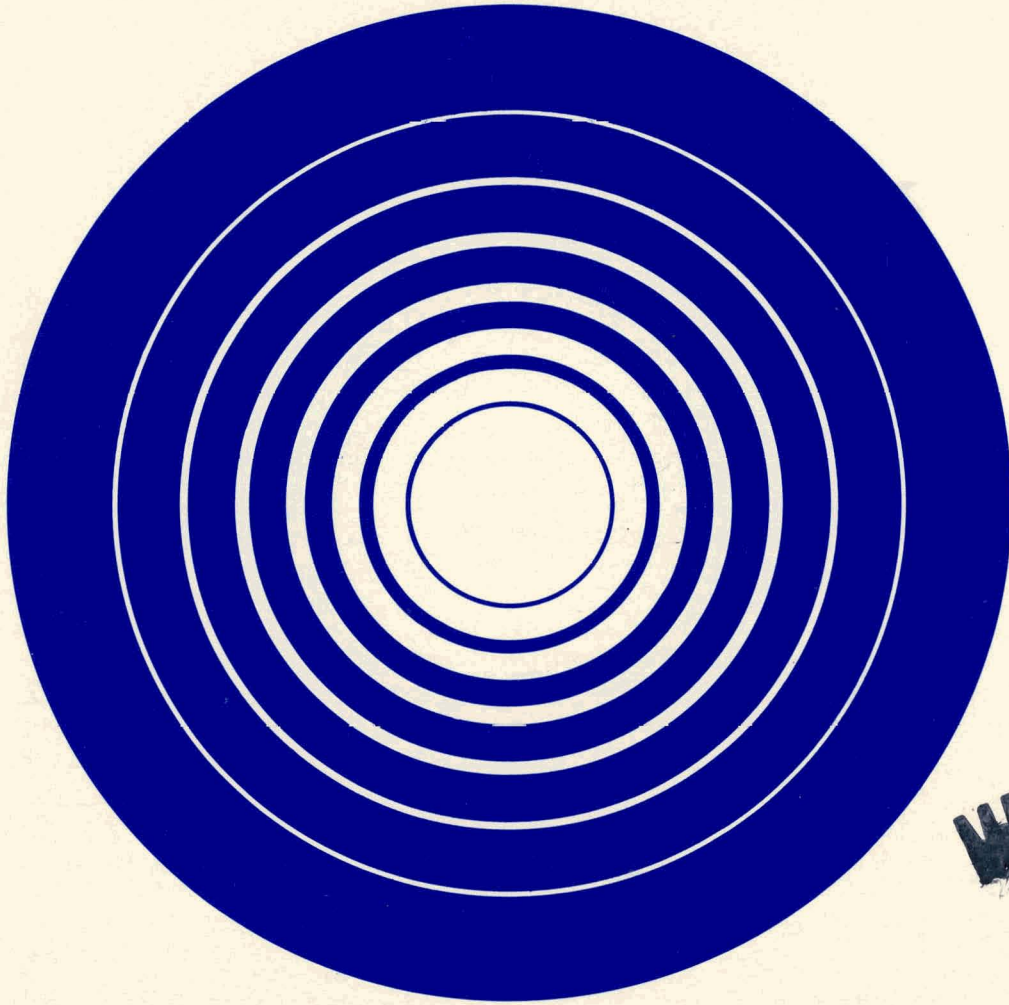
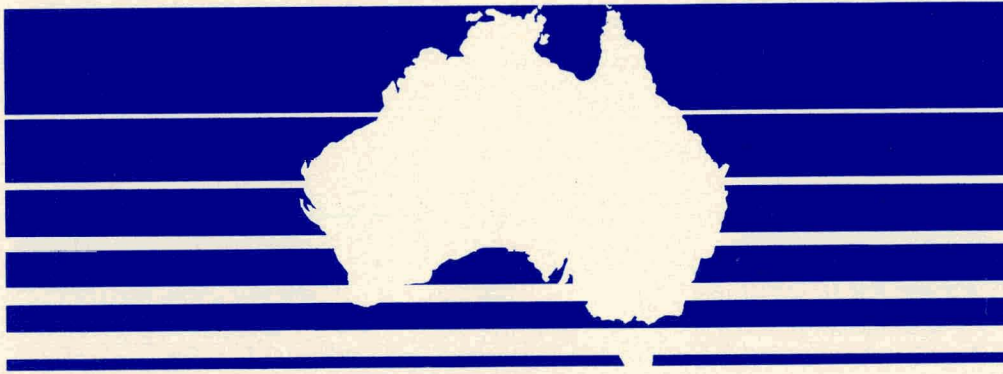


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SOLAR ENERGY IN AUSTRALIA

A Profile of Renewable Energy Activity
in Its National Context

by Glenna L. Case

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Solar Energy Research Institute

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Golden, Colorado 80401


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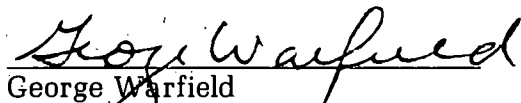


Preface

This document was prepared as part of Task Number 4330, The Information Task, of the International Division of the Solar Energy Research Institute (SERI) in cooperation with the Solar Energy Information Data Bank (August 1980). The report is one of a series and reflects the most thorough effort to gather information on solar energy activities in other countries. It was prepared for the administrative use of the U.S. Department of Energy and is subject to frequent updating. For further information contact the International Division of SERI (303) 231-1839.

Approved for:

SOLAR ENERGY RESEARCH INSTITUTE



George Warfield
Acting Division Manager
International Division

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Nomenclature

AMIRA	Australian Mineral Industry Research Associates
CSIRO	Commonwealth Scientific and Industrial Research Organization
DOE	The U.S. Department of Energy
ISES	International Solar Energy Society
ISES-ANZ	International Solar Energy Society, Australia and New Zealand Section
NERDDC	National Energy Research, Development, and Demonstration Council
SERIWA	Solar Energy Research Institute of Western Australia

Country Overview

The democratic Commonwealth of Australia, the sixth largest country in the world, comprises the continent of Australia, the island of Tasmania, and numerous small, mostly uninhabited islands. An arid country, fully one-third of its area is desert and another one-third is steppe or semi-desert. Only the northern, eastern, and southern coastal areas receive adequate precipitation to support protective vegetation. Climatic zones vary from tropical in the north to temperate in the southeast, southwest, and Tasmania. While much of the arable land is devoted to agriculture and animal husbandry, Australia is a highly developed, industrial, urban society. The country has abundant natural resources including uranium, coal, natural gas, but only some oil. Even so, its nearly ideal climate, the high level of interest in the scientific community, and the government's expressed commitment to 20% solar conversion by the year 2000 combine to make Australia one of the leading solar research, development, and demonstration countries.

Energy Summary

Current Energy Sources

- Black and Brown Coal (massive reserves)
- Hydropower (limited by periodic drought)
- Natural Gas (reserves expected to last well into the next century)
- Petroleum (domestic reserves approach depletion; currently importing)
- Solar (many applications investigated and demonstrated over the past 25 years; growing commercialization sector)
- Synfuel (coal gasification is a high research, development, and demonstration priority)
- Uranium (sizable uranium oxide reserves are currently mined for research, development, and demonstration and export)

See also: Solar Applications, Indigenous Energy Sources, Imported Energy Sources, and International Projects.

Solar Activities

- The Commonwealth Government takes responsibility for setting up organizational and advisory bodies (see CSIRO and NERDDC).
- Most projects are organized and funded at the state level of government, though federal participation through various agencies is increasing.
- The National Energy Research, Development, and Demonstration Council (NERDDC) funds many solar proposals from its multi-million dollar energy budget.
- Over 60 manufacturers of solar equipment exist but few engage directly in research, development, and demonstration projects.

See also: International Contacts, International Projects, Government Energy Structure, Organizations for Implementation, and Solar Energy Organizations.

Solar Applications

- Active Solar Thermal: desalination, electricity production, hydrogen production, industrial process heat, refrigeration, solar drying, space cooling, space heating, synthetic fuel, domestic water heating, and water pumping.
- Passive Solar Thermal: solar drying, space cooling, and space heating.
- Wind: water pumping and electricity production.
- Photovoltaics: desalination, electricity production, hydrogen production, and materials research.
- Ocean Thermal Energy Conversion: electricity production.
- Bioconversion: electricity production, industrial process heat, synthetic fuels, and transportation.

See also: International Projects.

Areas for Cooperation

The U.S. Department of Energy (DOE) is currently negotiating a solar information exchange agreement with Australia. Apparently, the majority of business opportunities for the U.S. solar industry will be licensing agreements with Australian solar companies and the export of high-technology components for use with locally manufactured solar equipment. Detailed local regulations inhibit U.S. marketing of complete solar systems in Australia. Near to mid-term business opportunities for U.S. firms appear to be in water heating and air conditioning equipment, swimming pool heaters, and industrial process heating equipment. The Solar Energy Industries Association of Australia invites U.S. solar companies to use the Association for disseminating product information.

See also: International Agreements, International Manufacturers, International Contacts, and Solar Energy Organizations.

The Commonwealth of Australia

Geopolitical, Economic, and Cultural Aspects

Population Demography§

AREA AND DENSITY OF AUSTRALIA'S POPULATION

Place	Area (km ²)	Population*	Population Density† (km ²)
AUSTRALIA	7,682,300	14,070,000‡	2.0
New South Wales	801,600	4,914,300	6.0
Newcastle		362,980	
Sydney		2,935,900	
Wollongong		211,100	
Queensland	1,727,200	2,111,700	1.0
Brisbane		957,700	
South Australia	984,000	1,261,600	1.0
Adelaide		900,400	
Tasmania	67,800	407,400	6.0
Hobart		162,100	
Victoria	227,600	3,746,000	16.0
Melbourne		2,603,600	
Geelong		131,600	
Western Australia	2,525,500	1,169,800	0.5
Perth		805,500	
Northern Territory	1,346,200	101,400	0.07
Australian Capital Territory	2,400	203,300	84.0

* June 1976, unless otherwise specified

† Population Distribution: 83% urban

‡ 1977 UN Estimate

§ Data is drawn from "Australia." *Deadline Data on World Affairs* (Feb. 1979). Greenwich, Conn.: DMS Inc. and "Australia." *The Far East and Australasia 1977-78: A Survey and Directory of Asia and the Pacific*. London: Europa Publications Limited; 1979.

Government Structure

Australia is an independent, federal, parliamentary dominion of the British crown. The constitution provides for a strong central government in which federal powers are specifically enumerated and residual powers are vested in the states. Executive power rests with the Prime Minister and the Federal Executive Council. Legislative authority is vested in a bicameral federal parliament. An independent federal judiciary rules on the constitutionality of executive and legislative actions.

The Executive

Queen Elizabeth II, Head of State
Sir Zelman Cowen, Governor General
Malcolm Fraser, Prime Minister
Douglas Anthony, Deputy Prime Minister

The Diplomatic Register

Sir N. F. Parkinson
Ambassador
Australian Embassy
1601 Massachusetts Avenue, NW
Washington, D.C. 20036
(202) 797-3000

Foreign Consulates

Australian Consulates are in: New York City, Chicago, San Francisco, and Hawaii.

United States Representation

Philip H. Alston, Jr.
Ambassador
American Embassy
Moonah Place
Yarralumla, A.C.T. (Canberra) 2600
AUSTRALIA
(062) 73-3711

United States Consulates

Melbourne, Sydney, Brisbane, and Perth.

Institutions

General

When addressing Australians, personal titles should be used. Appointments are made as far in advance as possible and callers are expected to be punctual. In general, the 40-hour workweek is observed with most establishments closing at least half of Saturday and on Sunday. December - January is the principal holiday season.

Education

Education is free and compulsory for all between ages 6 and 15. There are 19 universities and 985 technical schools.

Labor

In 1975, 49% of the labor force belonged to trade unions that are organized on a craft or semi-industrial basis. Most manual workers are affiliated with the Australian Council of Trade Unions, which determines national trade union policy.

Political Parties

The three major political parties are: the Liberal Party, the National Country Party, and the Australian Labor Party, reflecting business, agricultural, and trade union interests respectively. Minor parties include: the Communist Party of Australia, the Communist Party of Australia: Marxist-Leninist, the Australia Democratic Labor Party, the Socialist Party, the Farm and Town Party, and the Australian Democrats.

Religion

Over 55% of the population subscribe to various Protestant faiths and 25% are Catholic.

Economy

Australia has a developed, regulated, market economy characterized by industrialization, urbanization, large-scale production units, and the exploitation of mineral resources. The government owns the railroads, utilities, telecommunications, and several airlines and exercises considerable controls over banking, credit, and agriculture. Australia's traditional reliance on the agricultural sector has been eroded by recent major oil and mineral discoveries. Foreign trade patterns have shifted from customary ties with Great Britain toward increasing exchange with Japan and the United States.

See also: Industry, Agriculture, Architecture, and Communications.

Currency

100 cents = 1 Australian dollar

Exchange Rate

US\$ 1.00 = 0.91 Australian dollars (March 1980)

Gross National Product

US\$ 97,750 million (1977) [Deadline Data on World Affairs, 1979.]

Gross Domestic Product per Capita

US\$ 6,764 (1977) [Foreign Economic Trends, April 1979.]

Gross Domestic Product

US\$ 96,046 million (1977) [Foreign Economic Trends, April 1979.]

Principal Trading Partners and Products**Imports in 1976**

United States 20.0%; Japan 19.5%; Britain 13.4%; West Germany 6.5% (industrial and electrical machinery, transport equipment, chemicals, and crude materials).

Exports in 1976

Japan 32.9%; United States 10.0%; New Zealand 4.7%; Soviet Union 3.8% (metal ores, textile fibers, beef, grains, and coal).

Industry

Australia has no comprehensive economic plan for industrial development. Fiscal and monetary policies regulate employment and inflation. Labor-industry negotiations are settled by the National Arbitration Council which determines what fraction of the consumer price index is transferred to workers. Prices generally follow the market. The states regulate business.

New South Wales (N.S.W.) is the premier industrial state. Its capital, Sydney, is the leading commercial and industrial center for the heavy metals industry, importers, and manufac-

turers' agents. Second is Victoria with an industrial sector containing one-third of the country's manufacturing capacity. Melbourne, the capital, is an important distribution center and the financial hub of the country. It has the headquarters of most of the largest manufacturing and mining companies and its main products are aircraft, vehicles, textiles, rubber, and petrochemicals. Queensland and Tasmania provide many of Australia's primary products including timber, sugar, meat, fruit, zinc, copper, and aluminum and iron ores. South Australia has several sites for the production of consumer durables and minerals, but most of its manufacturers are located in the capital, Adelaide. Western Australia (W.A.) and the Northern Territories are major regions for mineral and ore extraction. Perth is the commercial and administrative capital of W.A., whereas Kwinana has steel mills, oil refineries, fertilizer plants, and nickel and aluminum processing facilities. While Australian industry is well-developed and diversified, the small local market cannot sustain the production of specialized machines, heavy fabricating and electrical equipment, some industrial chemicals, and sophisticated scientific equipment. These must be imported.

Solar collector manufacture began about 25 years ago and solar water heater production value is now over A\$10 million, 90% of which is in W.A. and South Australia. Products generally are high quality, with both hardware and know-how (in the form of license agreements) being exported.

See also: International Contacts, and International Manufacturers.

Agriculture

Agricultural organization and production is industrial and capital intensive. The country is nearly self-sufficient in food and agricultural raw materials, though it imports large amounts of mechanized equipment. The general trend is toward larger farms and fewer operators. Australia ranks first in the world as an exporter of wool (90%) and meat (65%); second in sugar; and third in wheat, dairy products, and apples (1970-75). Oats and barley are also important crops. In FY75, rural products accounted for an estimated 45% of total exports.

Communications

- Australia has more than 912,000 km of road available for general traffic.
- The 40,000 km government railway system provides most of each state's transport requirements. A new railway between Tarcoola and Alice Springs (832 km) will have a photovoltaic-based communications network.
- Trans Australia Airlines (government) and Ansett National Airlines (private) operate domestic service throughout the continent and islands. Australia's five international airports are served by Qantas (government) and more than 20 international airlines.
- Coastal shipping carries about 5% of all goods transported, handling bulk items such as coal, ore, sugar, and oil.
- 118 medium-frequency, commercial radio stations; 48 commercial television stations; and many government-owned stations are regulated by the federal government.
- Over 600 newspapers range from large metropolitan dailies to provincial weeklies. The periodical press covers the spectrum common to most developed countries, and trade and professional journals are numerous.
- There are many trade associations.
- The national advertising industry is highly organized and was valued at US\$ 834 million in 1974.
- Telecomm Commission, a semi-independent government organization responsible for telephone and telegraph services, uses photovoltaics and has its own labs devoted to batteries and specifications research, though it does not produce cells itself. The Postal Commission handles mail services, and the Overseas Telecommunications Commission

manages international communications. All are administered through the Postmaster General's Department.

See also: International Projects.

Architecture

The building industry is one of the largest sectors of the Australian economy, with buildings constructed to the value of A\$6500 million in 1976-77. In 1971 over 85% of all new houses and over 92% of all new apartments were built for private ownership, together forming over 50% of the total value of all building construction types. In older construction, wide verandas and shading of walls and windows are common on one-story buildings, although until recently, inexpensive fuels and modern air conditioning made such solar planning seem obsolete. There is substantial renewed interest in passive design. In an average Australian household, 75% of the total energy consumed is used for low-grade heating applications such as hot water and space heating and cooling that are easily amenable to solar applications.

See also: International Projects.

Physical Geography

The continent of Australia is characterized by compact, stable plateaus of generally low elevation. The Ancient Plateau (305 m), with areas of desert, dominates the western two-thirds of the country. Lowland plains of the east-central region rise gradually to a highland belt along the east coast (2,229 m) before dropping to the narrow eastern coastal plains. Tasmania is mountainous. Poor, infertile soils exist throughout much of the country and most rivers are seasonal. There is an ample supply of artesian water suitable for watering livestock, although it is too high in mineral content for agricultural irrigation. The southeastern Murray-Darling river system, the most important drainage basin in the country, is the source for large irrigation schemes. Australia has extensive areas of shrubland, savanna, and open woodland with few dense forests. Eucalyptus and Acacia trees, valuable for their oils and hardwood, predominate. Very rich in most natural resources, Australia has large reserves of iron, bauxite, zinc, lead, copper, gold, gypsum, limestone, manganese, nickel, phosphate, silver, tin, tungsten, salt, and potash.

Climate

The hours of daylight in Australia vary minimally because of its closeness to the Equator. Western Australia and New South Wales are Australia's sunniest regions. Each has over 300 h/mo of sunshine for 10-12 months per year. Perth, W.A. (30°57'S, 11°51'E, 60 m elev.) and Sydney, N.S.W. (33°51'S, 151°13'E, 42.1 m elev.) have similar elevations and latitudes although located at opposite ends of the continent. The two cities have about 10 h and 14 h of daylight at the winter and summer solstices, respectively. However, the daily hours of sunshine are much less. At the winter solstice, Perth usually has less than 5 h, while Sydney has slightly more. Due to cloudiness during the summer, Perth has about 10 h of sunshine/day, while Sydney has only about 7 h.

Climatic Sample

Insolation at both sites averages 2,719.6 J/m² in January (the hottest month) and 1,046.0 J/m² in July (the coldest month). In January, Perth and Sydney have mean daily air temperatures of 23.4° C and 22.0° C, and relative humidity indexes of 53% and 68% respectively. July temperatures are 13.1° C and 18.8° C with indexes of 73% and 67% for relative humidity. Mean precipitation figures for Perth and Sydney are 7 mm and 104 mm in January, 183 mm and 94 mm in July. Variable atmospheric currents bring seasonal rains to different parts of Australia during different times of the year.

For complete solar-related climatic data on Australia, contact SERI International Division (303) 231-1839.

The Energy Profile

Energy Policy Objectives

Australia has postponed indefinitely the decision to build a commercial nuclear reactor even though the country is rich in uranium, which it mines for export. Energy self-sufficient in most areas, Australia cannot meet its needs for liquid fuel and seeks renewable sources to free liquid fuels for uses where alternatives are not currently possible. The country stands in the vanguard of solar research and hopes to achieve 20% solar by the year 2000.

See also: Indigenous Energy Sources, Imported Energy Sources, and International Projects.

Government Energy Structure

- Energy-related matters are considered by the Senate Standing Committee on Natural Resources.
- The Ministry of Trade and Resources (J. Douglas Anthony, Minister) is responsible for overall energy development and electric power.
- The individual states are responsible for the discovery, development, and conservation of their own energy resources.

See also: International Contacts.

Organizations for Implementation

- Commonwealth Scientific and Industrial Research Organization (CSIRO) promotes and performs scientific research in connection with primary and secondary industries on non-nuclear and non-military matters, including energy. Its Solar Engineering Unit (formerly Solar Energy Studies Unit) operates as an information gatherer and sponsor of demonstration projects, while the bulk of the actual research is performed by the Divisions of Mechanical Engineering and Mineral Chemistry.
- Australian Atomic Energy Commission (AAEC), a government agency, maintains overall responsibility for nuclear licensing and safety, research and development, and uranium resource evaluation.
- Bureau of Mineral Resources, Geology and Geophysics (BMR) under the Ministry of Trade and Resources provides support for development and administration of national policies for exploration, exploitation, and management of Australia's mineral resources.

See also: International Contacts.

Indigenous Energy Sources

Coal

In 1975 Australians' total coal consumption reached 35.43 million tonnes. The nation exports about half of its annual hard coal production (72,560 million tonnes), mostly to Japan. While coal resources are expected to last another 100-150 years (depending upon exports) and currently provide 81% of all electricity generation, a large research effort is underway to develop ways to mine more efficiently and to convert coal to liquid fuels.

Natural Gas

Consuming sectors used 3.83 thousand m³ of natural gas in 1975. Over half of Australia's proven natural gas reserves of 1,595 thousand m³ are located offshore in the west or north, more than 3,200 km from major domestic consuming markets. The country lacks the investment capital and technology to exploit this resource fully without significant foreign participation.

Petroleum

Production from the Bass Straits Field accounts for about 90% of domestic oil output. Oil production has peaked and proven reserves of 1.4 billion barrels are declining. In 1975, all consuming sectors combined used 21.37 million tonnes of petroleum. By 1977, demand was outstripping production by about 30%. CSIRO estimates that local production will provide only 5% of domestic requirements by the year 2000. The prognosis for further discoveries is not promising.

Solar

Australia has a nearly ideal climate and location for solar applications: Presently, the solar equipment industry is primarily oriented toward supplying hot water systems for homes and hotels where flat-plate collectors can heat water to 50 or 60° C. Between 1972 and 1978, collector production grew from 7,000 to 63,000 m², an average increase of about 60% per annum.

See also: International Manufacturers.

Imported Energy Sources

Petroleum

Although a net exporter of energy, Australia must import approximately 35% of its petroleum needs, partly because Australian crude oils do not provide the heavy fractions necessary for industrial furnace heating and bunker fuel. The petroleum import bill is expected to rise from A\$700 million in 1977 to A\$2,500 million in 1985.

Solar Energy Research and Development

Solar energy research and development began in Australia over 25 years ago at the CSIRO Division of Mechanical Engineering, which concentrated on applications involving thermal processes. Current programs are at CSIRO, the universities, colleges of advanced education, and certain industrial research laboratories. Funds are provided by the Australian Government, either directly as in the case of CSIRO, or through statutory bodies such as the Australian Research Grants Committee which supports universities, and the Australian Industrial Research and Development Grants Board which supports research in industry. Other funding agencies include the Electric Research Board, the Australian Mineral Industry Research Associates (AMIRA), and NERDDC.

Several state governments have organizations which sponsor solar activities. In 1978-79, \$600,000 was allocated to the Solar Energy Research Institute of Western Australia (SERIWA). The Victorian Solar Energy Research Committee expected to allocate \$500,000 in FY79. The South Australian Government has approved the \$400,000 solar allocations of its Energy Advisory Committee. The total estimated annual expenditure is approximately \$5.5 million.

Reports have been published describing these institutions' work relating to solar stills for water desalination, flat-plate collectors for water and air heating, rock thermal storage, building heating and cooling, the heating of swimming pools, industrial and process heating, and the drying of timber and other products. Current research and development efforts are

directed mainly toward solar air heating and cooling with primary emphasis on industrial process heat. Basic climatological measurements necessary to support solar applications are ongoing as are investigations into collector surfaces, materials, and energy storage. Wind and bioconversion projects are receiving increasing priority.

See also: Solar Energy Organizations, International Contacts, and International Projects.

Solar Energy Organizations

- Victorian Solar Energy Research Organization
- International Solar Energy Society (ISES), headquarters
- International Solar Energy Society, Australia and New Zealand Section (ISES- ANZ)
- SERIWA - funding organization
- The Science Foundation for Physics, The University of Sydney
- The Solar Energy Research Programme, The University of Sydney
- International Solar Energy Congress
- Australian Government National Energy Advisory Committee
- CSIRO (Solar Engineering Unit)
- NERDDC
- New South Wales Solar Energy Advisory Committee
- Queensland Energy Resources Advisory Committee
- South Australia State Energy Research Advisory Committee
- Tasmania Energy and Resources Committee
- Consultative Committee on Research for Development
- Solar Energy Industries Association of Australia
- AMIRA

See also: International Contacts.

Solar Energy Related Legislation and Administrative Policies

- Environment (Impact of Proposals) Act of 1974 provides that matters significantly affecting the environment must be scrutinized by the Australian Government which may require the preparation and acceptance of an environmental impact statement.
- The government of the Northern Territory has ordered all new government construction to have solar hot water heaters.

Selected Sources

1. "Australia." **Deadline Data on World Affairs**. Greenwich, CT: DMS Inc; 1979.
2. "Australia." **The Far East and Australasia 1977-78: A Survey and Directory of Asia and the Pacific**. London: Europa Publications Limited; 1977.
3. "Australia." **U.S. Army Handbook**. 1974.
4. CSIRO Division of Mechanical Engineering. **Report on Research 1975-77**. Melbourne, Australia: Commonwealth Scientific and Industrial Research Organization; 1978.
5. **CSIRO Twenty-ninth Annual Report 1976/77**. Melbourne, Australia: Commonwealth Scientific and Industrial Research Organization; 1977.
6. **CSIRO Thirtieth Annual Report 1977/78**. Melbourne, Australia: Commonwealth Scientific and Industrial Research Organization; 1978.
7. Department of National Development. **A Directory of Australian Solar Energy Research and Development**. Melbourne, Australia: Commonwealth Scientific and Industrial Research Organization; June 1978.
8. Gentili, J. (ed.) "Australia and New Zealand." **World Survey of Climatology**. Vol. 13. Edited by H. E. Landsberg, (ed.) New York: Elsevier Publishing Co.; 1971.
9. Keely, Nancy H. "Marketing in Australia." **Overseas Business Reports**. Washington, DC: U.S. Department of Commerce; March 1978.
10. Morse, Roger N. "Solar Energy in Australia." **AMBIO**. Vol. 6 (No. 4): 1977.
11. Morse, Roger N. "Solar Energy Research, Development and Demonstration in Australia." **Search**. Vol. 9 (No. 4): April 1978.
12. Office of International Affairs. **The Role of Foreign Governments in the Energy Industries**. Washington, DC: The Department of Energy; 1977.
13. Office of Program Management Support. "Australia." **World Energy Data System: Country Data AF-CO**. Vol. 1. Argonne, IL: Argonne National Laboratory; June 1979.
14. Solar Energy Research Institute. **International Solar Energy Survey**. Golden, CO: Solar Energy Research Institute; Forthcoming 1980.
15. Solar Energy Research Institute of Western Australia. **Annual Report 1978-79**.
16. Szokolay, S. V.; Sale, R. W. **The Australia and New Zealand Solar Home Book: A Practical Guide**. Sydney, Australia: Australia and New Zealand Book Company; 1979.
17. Patil, Pandit; Calder, Ian; Farnsworth, Susan; et al. **Country Notebooks on Alternative Energy Sources for Australia, Japan, and New Zealand**. Washington, DC: Systems Consultants, Inc.; 1979.
18. U.S. Foreign Service. "Australia." **Foreign Economic Trends and Their Implications for the United States**. Washington, DC: U.S. Department of Commerce; April 1979.

International Agreements

India/Australia (March 1978)

India and Australia will jointly finance a survey of the energy needs of the Commonwealth nations within the region and will examine the potential for alternative energy sources and applications. To be surveyed are Australia, Bangladesh, Fiji, India, Malaysia, Nauru, New Zealand, Papua New Guinea, Samoa, Sri Lanka, and Tonga. The survey's emphasis will be on low-grade technology aimed at establishing low-cost and readily-available energy from methane gas, the sun, and wind. India's pioneering work in bioconversion and Australia's contributions in small-scale solar energy for heating, cooking, and mechanical power are expected to facilitate technology transfer in the other nations which are (with the exception of Malaysia) totally dependent upon imported energy. Budget information and time frames for the studies are not available.

Japan/Australia (No Dates Available)

Japan and Australia have agreed to cooperative research programs in: (1) coal utilization, including coal liquefaction; (2) solar energy utilization, including solar heating/cooling systems; (3) other unspecified energy technologies. In principle, discussions between Australia and Japan are to take place annually, with an alternating discussion site. The agreement emphasizes the exchange of experts and information. No budget information is available.

Japan and Australia will cooperate on a joint project involving a solar air conditioning system employing evacuated glass-tube collectors. The four principals to the agreement are The Japanese Ministry for Trade and Industry, the Solar System Development Association of Japan, the Yanchep Sun City Proprietary Ltd. (a subsidiary of Tokoyo Corporation of Japan), and SERIWA. The Japanese will contribute A\$132,000 to the project, a remaining A\$84,000 to be provided by SERIWA.

Federal Republic of Germany/Australia (No Dates Available)

Federal Republic of Germany - Australia Science and Technology Agreement has a solar energy cooperation component. The initial solar aspect of this agreement was a workshop held in West Germany in which five Australian solar scientists participated. The purpose of the workshop was to identify new research programs, compare design methods, and arrange for the exchange of techniques and computer programs. The workshop focused on design methods, evaluation, economic optimization, use of collector test data, climatic and load data, and planning and management. No budget information is available.

The International Contacts Data Base

The ongoing International Contacts Data Base (ICON) development task, begun in January 1979, maintains approximately 1,400 international contacts as of May 1980. This multi-use file contains information on foreign individuals and organizations active in solar energy. These participants have been cited in professional journals or have visited the Solar Energy Research Institute since August 1978 and are associated with activities in governmental energy departments, business and industry, universities and research institutes, and regional quasigovernmental organizations. The records, which can be searched across several variables, include organizational affiliation, address, position, interests, and memberships. The format presented contains the organization name, its departmental divisions, addresses, and the names and professional interests of individuals affiliated with these organizations as of January 1980. While these records are updated as frequently as possible, THE INFORMATION CONTAINED NONETHELESS CHANGES RAPIDLY. More complete and current records may be obtained by contacting SERI International Division (303) 231-1839.

A. B. & S. Solar Pool Heating

23 Wrixon Avenue
East Brighton, Victoria 3187
AUSTRALIA

Distributes and installs Somer solar pool heating systems; Somer solar hot water heating systems; Photovoltaic units.

Adelaide Brighton Cement Ltd.

Schroder, W.
Managing Director
Member of South Australia State Energy Research Advisory Committee.

Alcoa of Australia Ltd.

535 Bourke Street
Melbourne, Victoria
AUSTRALIA

Hornbeck, R. D.
Manager of Operations, Western Australia
Member of Western Australia Solar Energy Advisory Committee.

Jackson, Graham B.
President of Solar Energy Industries Association of Australia.

Allunga Exposure Laboratory

P.O. Box 369
Hermit Park, Queensland 4812
AUSTRALIA

Involved with research concerning the value of high humidities in accelerating the testing of certain solar cell encapsulation qualities.

Cooper, R. A.

Involved with research concerning the value of high humidities in accelerating the testing of certain solar cell encapsulation qualities; Solar cooling and solar pumping projects.
077-781-697

Alternatives

37 Bangalla Street
Torwood, Queensland 4066
AUSTRALIA

Distributes Solaquest products, Metro solar panel (coiled tube), Sungril solar cooker, Dunlite products, literature on alternative energies and lifestyles. Provides natural pest control.

Amalgamated Wireless (Australasia) Limited (AWA)

P.O. Box 96
North Ryde, New South Wales 2113
AUSTRALIA

Converting Papua New Guinea's telecommunications network from battery power to solar power. To improve techniques for the direct conversion of solar energy by photovoltaic and thermoelectric means. Has developed solar-powered radio subscribers telephone equipment for the Post Office.

Applied Research of Australia Pty. Ltd.

Hastwell, P. J.
Fiberglass, reinforced plastic, and glass solar collector panels; Solar cooling.

Austen and Butta Limited

Austen, R.
Chairman and Managing Director

Australian Atomic Energy Commission (AAEC)

45 Beach Street
Coogee, New South Wales 2034
AUSTRALIA

Bradhurst, D. H.
*Conversion of solar energy to hydrogen fuel;
Storage.*

Mayer, Ivan
*Storage and thermal conversion for domestic
uses: Photoelectrolysis.*

Nuclear Science and Technology Branch.

45 Beach Street
Coogee, New South Wales 2034
AUSTRALIA

Butler, Emeritus, S. T.
*Member of National Energy Research,
Development and Demonstration Council.*

Australian Council of Trade Unions (ACTU)

254 La Trobe Street
Melbourne, Victoria
AUSTRALIA

Souter, H. J.
Former Secretary
Member of National Energy Advisory Committee.

Australian Heating Suppliers

71 Logan Street
East Brunswick, Victoria 3057
AUSTRALIA

*Distributes Solar Industries Inc. solar swimming
pool heating systems; Pool covers.*

Australian Innovation Corporation Limited

Prudential Building
150 Queen Street
Melbourne, Victoria 3000
AUSTRALIA

Seidler, J. H.
General Manager
*Solar heating and cooling for domestic and
commercial purposes, and solar collectors.*
67-7796

Australian Mineral Development Laboratories (AMDEL)

Flemington Street
Frewville, South Australia 5063
AUSTRALIA

*Determining the energy requirements of the
mineral industry, especially preparations with
low grade heat (less than 120 deg. C) that
could be provided by solar energy using
current technology.*

Dillon, Barry
*Environmental and geographical factors which
influence water chemistry.*

Lackey, J. A.
Thermal heating; Industrial process heat.

Australian Mineral Industries Research Association Ltd. (AMIRA)

Clunies Ross House
191 Royal Parade
Parkville, Victoria 3052
AUSTRALIA

Nixon, John D.
*Engaged in research and development of equip-
ment and techniques on behalf of its mining
industry; Sponsors and is actively involved in
solar power applications for the mining
industry.*

Australian National Railways

55 King William Road
North Adelaide, South Australia 5006
AUSTRALIA

Dyason, V. H.
General Manager
*Has contracted for 900 solar cell modules to
run a combination microwave and VHF com-
munications system at 24 stations along the
Tarcoola-Alice Springs railway to be opened
in late 1980.*

Australian National University Centre for Resource and Environmental Studies

P.O. Box 4
Canberra,
Australian Capital Territory 2600
AUSTRALIA

Harris, Stuart
Member of National Energy Advisory Committee
495111

Research School of Physical Sciences**Department of Engineering Physics**

P.O. Box 4
 Canberra,
 Australian Capital Territory 2600
 AUSTRALIA

Carden, Peter O.

Senior Fellow

Direct radiation monitoring; Mirrors and mirror steering; Dissociation and transfer experiments; Storage of dissociation products in underground aquifers.

495111

**Department of Engineering Physics,
Energy Conversion Group.**

P.O. Box 4
 Canberra,
 Australian Capital Territory 2600
 AUSTRALIA

Edwards, Brian

Design of a thermo-chemical absorber for a solar power plant; Control scheme collector deflections from wind gusts.

495111

Kaneff, Stephen

Design of a thermo-chemical absorber for a solar power plant; Solar high temperature chemical conversion project.

495111

Williams, O. M.

Design of a thermo-chemical absorber for a solar power plant.

**Australian Petroleum Exploration
Association.****Sprigg, R. C.**

Consultant, First Chairman
 Member of National Energy Research, Development and Demonstration Council.

**Australian Research Grants
Committee****Department of Science**

P.O. Box 449
 Woden,
 Australian Capital Territory 2606
 AUSTRALIA

Federal funding for solar projects.

**Australian Science and
Technology Council (ASTEC)****Street, R.**

Chairman of the Energy Committee.
Conducting a study of current energy research and development activity in Australia.

**Australian Telecommunications
Commission (TELECOM)**

Solar powered telephones; Photovoltaics.

Research Laboratories**Teede, N.**

Application of photovoltaics in telecommunications equipment.

Physical Sciences Branch**Chisholm, B.**

Solar heat; Solar cells; Evaluation of solar power module packaging.

Mitchell, G.

Solar heat; Solar cells evaluation of solar power module packaging.

**Ballarat College of Advanced
Education****School of Engineering**

Geer Avenue
 Mt. Helen, Victoria 3350
 AUSTRALIA

Cubitt, Len J.

Windmill design.

McGrath, Les J.

Windmill design.

Baratech

59 Hunter Street
 Hornsby, New South Wales 2077
 AUSTRALIA

Australian distributors of Fafco solar panels for pool heating (manufactured in California). State distributors in New South Wales, Queensland and South Australia with distributors soon in Victoria and Western Australia.

Beasley Industries Pty. Ltd.

Bolton Avenue
Devon Park, South Australia 5008
AUSTRALIA

Manufactures a range of solar systems and components, including; Sola-Glasline Mains pressure tank, Solapak low pressure thermosyphon tank, Solapak absorber panels, Solalowline gas-boosted tank, Compact 100 close-coupled systems, Mains pressure-pre-heater, and a Solar circulator unit.

Beasley, E.

Double glazed low-iron glass industrial collectors.

Broken Hill Proprietary Co. Ltd. (BHP)

P.O. Box 274
Clayton, Victoria 3168
AUSTRALIA

Carne, I. H.

General Manager Western Australia

Lonie, W. M.

General Manager, Coal
Member of National Energy Advisory Committee

P.O. Box 274
Clayton, Victoria 3168
AUSTRALIA

Design of a low-cost solar water heater for mass production and the development of cheap selective surfaces.

Tegart, W. J.

Manager

Solar water heating; Solar air conditioning systems; Development of a solar mechanical converter.

Research and New Technology

140 William Street
Melbourne, Victoria 3000
AUSTRALIA

Ward, R. G.

General Manager

A new concept of flat plate solar collectors; Vapour engine; Low cost solar energy and cost effective air conditioning units.

Broughton & Co.

24A Cordelia Street
South Brisbane, Queensland 4101
AUSTRALIA

Agent for Solar Industries Inc., manufacturers of solar pool heating systems and for Culligan International Co., manufacturers of filtration and potabilization equipment.

Bureau of Meteorology

Department of Science

Box 1289K, G.P.O.
Melbourne, Victoria 3001
AUSTRALIA

Shaw, P.

Solar radiation data.

Capricornia Institute of Advanced Education

Department of Mechanical Engineering

M.S. 76
Rockhampton, Queensland 4700
AUSTRALIA

Bugler, J. W.

Measurement, specifications, and planning of major solar energy power stations; Solar heated swimming pools; Application of photovoltaic cell modules for communication repeater stations in remote localities.

Caulfield Institute of Technology

Department of Mechanical Engineering

900 Dandenong Road
P.O. Box 197
Caulfield East, Victoria 3145
AUSTRALIA

Deutscher, K.

Industrial process heat; Electric power generation; Refrigeration.

Comalco Ltd.

Leigh, J.

Solar cooling; Air conditioning in mining towns.

Commonwealth Scientific and Industrial Research Organization (CSIRO)

P.O. Box 26
Highett, Victoria 3190
AUSTRALIA

Banks, Peter

Diesendorf, Mark

Proposes 3000 two MW generators to be located along the South Australia coastline at intervals of 0.5 km to provide 8.4 TWh/year. Seven hundred similar units placed 0.5 km along the Western Australia coastline could provide 1.7 TWh/year. Total potential from the two systems could be as much as 20 TWh/year.

Gibson, D. C.

Senior Research Scientist
 Australian Acoustical Society, Victoria Division;
 Institution of Engineers, Australia; Journal of
 the International Solar Energy Society.

Stewart, Alan**Worner, Hill W.**

Executive Advisory Council
 Member of National Energy Advisory
 Committee.

Central Information Library and Editorial Section

P.O. Box 225
 Dickson,
 Australian Capital Territory
 AUSTRALIA

Judge, Peter J.

Has solar data base.
 48 4211

Division of Applied Organic Chemistry

P.O. Box 26
 Highett, Victoria 3190
 AUSTRALIA

Johns, S. R.

Research on biological and synthetic photo-
 synthesis.

Sasse, W. H. F.

Chemical Conversion; Storage; Synthesis of com-
 bustible fuels through non-biological means.

Division of Atmospheric Physics

P.O. Box 77
 Mordialloc, Victoria 3195
 AUSTRALIA

Sponsors the National Center for Radiation
 Instrument Calibration and Analyses which
 tracks the availability and character of solar
 radiation for Australia.

Collins, B. G.

Radiation Standards.

Paltridge, G. W.

Solar radiation statistics for Australia; Direct
 measurement of water vapour absorption of
 solar radiation in the free atmosphere;
 Radiation input for Australia.

Division of Building Research

P.O. Box 56
 Highett, Victoria 3190
 AUSTRALIA

Determining a method of building design based
 on climatic data.

Ballantyne, E. R.

Senior Principal Research Scientist
 Passive solar energy utilization in buildings;
 Solar tables; Thermal performance of
 dwellings.
 (03) 950333

Hill, R. K.

O'Brien, L. F.
 Thermal insulation.

Page, M. W.

New techniques to upgrade the energy potential
 of solid residues from the timber milling
 process.

Spencer, J. R.

Division of Chemical Technology

P.O. Box 26
 Highett, Victoria 3190
 AUSTRALIA

Curtain, Cyril C.

Study biosynthetic production of fuels; Industrial
 organic chemicals; Refining naturally-
 occurring oils in marine plants; Fermenting
 the plants to make methane gas or ketones.

Gartside, G.

To produce ethanol and methanol from arable
 crops, forestry and their residues.

Rawlins, W. H. M.

Ethanol and methanol production from arable
 crops, forestry and their residues.

Stewart, G. A.

Ethanol and methanol production from arable
 crops, forestry and their residues.

Weiss, D. E.

Producing liquid fuels from plant material, crops
 with carbohydrates or lipids, carbon dioxide
 from fossil fuel, algae in saline water.

Division of Food Research

Delhi Road
 North Ryde, New South Wales 2113
 AUSTRALIA

Work involves concentration of solar heat.

Lane, A. G.

Conversion of solid fruit and vegetable
 processing wastes to methane by anaerobic
 digestion.

Szulmayer, W.

Division of Horticulture Research

G.P.O. Box 350
 Adelaide, South Australia 5001
 AUSTRALIA

Solar drying plants.

Division of Irrigation Research

Private Bag
Griffith, New South Wales 2680
AUSTRALIA

Working on plastic greenhouses and solar radiation measurements.

Gartoli, K. V.

Plastic greenhouses.

Trickett, E. S.

Principal Research Scientist

Division of Land Use Research

P.O. Box 26
Highett, Victoria 3190
AUSTRALIA

Nix, H. A.

Production of ethanol and methanol from arable crops, forestry and their residues.

Division of Materials Science

Adelaide Laboratory

Adelaide, South Australia
AUSTRALIA

Nobbs, J. M.

Semiconductors and electrolyte interfaces in photovoltaic and photoelectrolyte cells.

National Measurement Laboratory

Culgoora Solar Observatory
University Grounds, City Road
Chippendale, New South Wales 2008
AUSTRALIA

Lehany, F. J.

Director

Founded in 1967, the Observatory is located in Culgoora near Narrabri and conducts solar research on both optical and radio wavelengths. The Optical Section is operated by the CSIRO National Measurement Laboratory.

Division of Mechanical Engineering

P.O. Box 26
Highett, Victoria 3190
AUSTRALIA

Christle, E. A.

Measuring total and diffuse radiation on horizontal and inclined surfaces; Providing basic data for the development of correlations relating solar radiation rates on a horizontal surface to rates on surfaces at various inclinations and orientations.

Hogg, Frank G.

American Society of Heating, Refrigeration and Airconditioning Engineers; Australian Institute of Refrigeration, Airconditioning and Heating; Institute of Electrical Engineers; International Institute of Refrigeration; International Solar Energy Society (ISES).

Proctor, David

03-950333

Rawling, B.

Chief

Australian visiting solar team.

Symons, J. G.

Research Scientist

Development of cost effective collectors; Performance testing; Retrofitting standard roofs.

Woolridge, Michael

To demonstrate that proper insulation and passive use of solar energy can be combined with the active use of solar radiation in a home in a way that is aesthetically pleasing and acceptable to the general public.

(03) 950333

Experimental House

Highett, Victoria
AUSTRALIA

Experimental house with an integrated roofing system.

Peck, Malcolm K.

Experimental Office

Development of a thermal-electrical solar power modules; Domestic solar water heaters; Development of a Stirling cycle solar engine.

Solar Engineering Unit

P.O. Box 26
Highett, Victoria 3190
AUSTRALIA

Formerly called the Solar Energy Studies Unit, the Solar Engineering Unit is designed to be a data collection and solar demonstration sponsor. Most actual research is carried on by CSIRO's Division of Mechanical Engineering.

Becker, P.

Thermal heating; Low energy housing; Passive heating of buildings; Solar air conditioning; Solar cooling; Thermal storage.

Close, Donald J.

Principal Research Scientist

Patents held: Au# 276,788; 1963; Solar Air Heater.

Cooper, Peter I.

Senior Research Scientist

Development and use of sophisticated computer based design and analysis tools, which make use of data and allow for prediction and performance of solar energy systems, and their optimization; Solar stills.

Davey, E. T.

Experimental Officer

Patents Held: AU# 483,941; 1973; Solar heating.

Dunkle, R. V.

Chief Research Scientist
Solar heating and cooling; Collectors; Selective surfaces; Waterheating; Storage; Stills; Timber kilns.

Kovarik, M.

Principal Research Scientist
Thermal; Storage.

Morse, Roger N.

Director (Retired)
Roger N. Morse has published papers on solar energy research strategy, thermal applications, and solar water heating for industrial and residential purposes. He is a past president of the International Solar Energy Society. Patents held: AU# 422,175; 1966; AU# 483,941; 1973.

Peck, K.

Senior Technical Officer

Read, W. R.

Officer-in-Charge
Industrial process heat.

Reid, J. H.

Senior Technical Officer
Patents Held: AU# 487,322; 1974; Improvements relating to hot water systems. Patents Applied For: AU# 86020/75; 1974; Electronic Controller.

Salt, H.

Progress report on the performance of three Australian solar hot water systems;
Calculation of heat tables using Program SOCOF I.

Divisions of Mechanical Engineering and Building Research

P.O. Box 89
East Melbourne, Victoria 3002
AUSTRALIA

Walsh, P. J.

Providing a library of weather data including solar radiation necessary for calculating the performance of solar energy systems and stored in form suitable for use with solar system simulation programs.

Division of Mineral Chemistry

P.O. Box 124
Port Melbourne, Victoria 3207
AUSTRALIA

Development of selective surfaces.

Reid, A. F.

Selective surfaces.

Siemon, Jim R.

Ethanol production.

Wilson, A. F.

Metallurgical Chemistry

P.O. Box 124
Port Melbourne, Victoria 3207
AUSTRALIA

Woods, Ronald

Section Leader
Selective surfaces and non-reflective films for flat plate collectors; Photovoltaic and photo-electrochemical devices; Surface coatings.
644041

Minerals Research Laboratories

P.O. Box 26
Highett, Victoria 3190
AUSTRALIA

Cathro, K. J.

The production, optimization and evaluation of various selective surfaces for solar absorbers; Evacuated glass collectors; Industrial process heat; Measurement.

Linge, H. J.

Production of hydrogen through photoelectrochemical research.

Newnham, I. E.

National Energy Research, Development and Demonstration Council; Member, National Coal Research Advisory Committee.

Scaife, D. E.

Photovoltaics; Solar cells; Measurements; Semi-conducting oxide materials suitable for use as anodes.

Whitehead, A. B.

Bioconversion of organic material.
(03) 950333

Division of Plant Industry

P.O. Box 1800
Canberra City,
Australian Capital Territory
AUSTRALIA

Involved in research and development for the production of ethanol.

Gifford, Roger M.

Ethanol and methanol production.

Division of Radiophysics

Culgoora solar Observatory

P.O. Box 76
Epping, New South Wales 2121
AUSTRALIA

Minnett, H. C.

Acting, Chief of Division of Radiophysics
Founded in 1967, the Observatory is located in Culgoora near Narrabri and conducts solar research on both optical and radio wavelengths. The Radio Section is operated by the CSIRO Division of Radiophysics.

Confederation of Western Australian Industry

Manufacturing Industry Council

Malone, F. J.
Director

Conservation of Primary Energy Pty. Ltd. (COPE)

P.O. Box 39963
Winnellie, Northern Territory
AUSTRALIA

*Darwin Solar Village Project aims at achieving
energy self-sufficiency for about ten families.*

CSR Limited

1 O'Connell Street
Sydney, New South Wales 2000
AUSTRALIA

Brown, D. D.

Deputy General Manager
*Member of National Energy Research, Develop-
ment and Demonstration Council.*

CSR Limited (Research Laboratories)

1 O'Connell Street
Sydney, New South Wales 2000
AUSTRALIA

Black, J. W.

*Assess the potential of cassava as a source of
power alcohol.*

Vickers, I.

To monitor Australian solar energy activities.

Department of Mines & Energy

Energy Branch

P.O. Box 151
Eastwood, South Australia 5063
AUSTRALIA

Messenger, M. J.

Director
Australian visiting solar team.

Department of National Development

P.O. Box 5
Canberra,
Australian Capital Territory 2600
AUSTRALIA

Newman, Kevin

Minister

*The Department is responsible for overall
energy development and electric power. It
includes Hydrocarbons, Uranium, Electric
Power, and Energy Planning Divisions. The
Planning Division formulates overall energy
policy objectives.*

Woods, A. J.

Secretary

*Member of National Energy Advisory Committee
and National Energy Research, Development
and Demonstration Council.*

Energy Office

P.O. Box 5
Canberra,
Australian Capital Territory 2600
AUSTRALIA

Christie, Alastair

Assistant Secretary

*The Department is responsible for overall
energy development and electric power. It
includes Hydrocarbons, Uranium, Electric
power and Energy Planning Divisions. The
Planning Division formulates overall energy
policy objectives. In 1976/77 there were 93
projects in solar R&D.*

Energy Policy Division

Tasman House
26-30 Farrell Street
Canberra City,
Australian Capital Territory 2601
AUSTRALIA

Carter, J. B.

First Assistant Secretary

Member of National Energy Advisory Committee.

Energy R & D Division

P.O. Box 5
Canberra,
Australian Capital Territory 2600
AUSTRALIA

Farrell, M. S.

First Assistant Secretary

Australian visiting solar team.

Hughes, C.

Principal Executive Officer

Australian visiting solar team.

**Donald Anderson Industries Pty.
Ltd.**

18-20 Thompson Street
South Melbourne, Victoria 3205
AUSTRALIA

*Distributes electronic heat meter equipment for
monitoring solar equipment performance
manufactured by Kamstrup-Metro A/S,
Denmark.*

**Electricity Trust of South
Australia**

P.O. Box 151
Eastwood, South Australia 5063
AUSTRALIA

Dinham, B. M.
General Manager
Member of South Australia State Energy
Research Advisory Committee.

Email Limited

Central R & D Department

Orlay, J.
Solar heating and cooling; Refrigeration.

Embassy of Australia

1602 Massachusetts Avenue, N.W.
Washington, D.C.

Whittem, James H.
Counsellor (Scientific)
Compiled CSIRO Book - Summary of Activities
12/12/78.
(202) 797-3260

Energy and Resources Committee

Department of Energy and Resources

Hobart, Tasmania 7000
AUSTRALIA

*Promotion of solar energy research and
development.*

**Energy Authority of New South
Wales**

Energy Systems Branch

P.O. Box 485 GPO
Sydney, New South Wales 2001
AUSTRALIA

Woodley, E. A.

Chief
Australian visiting solar team;
Chairman Solar Energy Advisory Board.

Solar Energy Advisory Committee

Box 485 G.P.O.
Sydney, New South Wales
AUSTRALIA

*Promotes solar energy research and
development.*

Energy Savers (W.A.)

13 Mitford Street
Swanbourne, Victoria 6010
AUSTRALIA

*Distributes Beasley hot water systems, Bradford
fiberglass bulk insulation, Madico reflective
window insulation, solar pool-heating systems;
Provides consultation and installation.*

Environment Council (NT) Inc.

P.O. Box 2120
Darwin, Northern Territory 5794
AUSTRALIA

Arch, B.
Solarwise Project Office.

Lee, Trevor R.
Solarwise Project Office.

**Flinders University of South
Australia**

Department of Physics

Bedford Park, South Australia 5042
AUSTRALIA

Blevin, N. A.
*Industrial process heat; Solar cooling; Solar
thermal.*
275-3911

Murray, E. L.
Member of South Australia State Energy
Research Advisory Committee.
275-3911

**Institute of Atmospheric and Marine
Sciences**

Bedford Park, South Australia 5042
AUSTRALIA

Schwerdtfeger, P.
*Measurement of solar irradiation and atmos-
pheric turbidity; Design of radiometers.*
275-3911

**School of Biological Sciences and
Institute for Energy Studies**

Bedford Park, South Australia 5042
AUSTRALIA

Hope, A. B.

Research on the mechanism of photosynthesis.
275-3911

School of Physical Sciences

Bedford Park, South Australia 5042
AUSTRALIA

Bockris, John O'M.

*Chemical analysis of hydrogen and oxygen
production; Electricity production; Theoretical
analysis of solar energy utilization simulations.*
275-3911

Matthews, D.

*Photosynthesis of hydrogen methanol using
artificial membranes.*
275-3911

**Foster Wheeler Australia Pty.
Ltd.**

492 St. Kilda Road
St. Kilda, Victoria 3004
AUSTRALIA

*Distributes Solarquest products; Domestic solar
hot water equipment.*

**Fuel and Power Commission of
Western Australia.**

16 St. George's Terrace
Perth, Western Australia 6000
AUSTRALIA

*Study of domestic solar hot water system
design to determine how a reduction in the
capital cost of these units could be achieved.*

**Gas & Fuel Corporation of
Victoria**

Scientific Services
1 Liardet Street
Port Melbourne, Victoria 3207
AUSTRALIA

Brown, G. M.

Manager
Australian visiting solar team.

Going Solar

375 Queen Street
Melbourne, Victoria 3000
AUSTRALIA

*Distributes a wide range of renewable energy
equipment including: Solar hot water heaters;
Photovoltaic equipment; Wind generators;
Batteries; Hydraulic rams and water pumps;
Potbelly stoves; Mud-brick making equipment;
Glasshouses.*

Heating Systems Pty. Ltd.

10 Brett Court
Cheltenham, Victoria 3192
AUSTRALIA

*Distributes Solarmax swimming pool heating
systems. Provides free design service covering
all aspects of the installation offered.*

Industudy

3 Wellman Street
Box Hill, Victoria 3128
AUSTRALIA

*Solar onergy applications and architectural
thermal design.*

International Marketing Pty. Ltd.

1396 Malvern Road
Tooronga, New South Wales
AUSTRALIA

Produces hot water heating systems.

**International Solar Design
Systems**

554 Lutwyche Road
Lutwyche, Brisbane, Queensland 4030
AUSTRALIA

Noble, Peter

*Designed the Pineapple Plantation, a motel
near Brisbane, which gets 82% performance
from solar hot water. The cost was \$11.00 per
square foot, about 20 sq. m.*

International Solar Energy Society (ISES)

International Headquarters
c/o National Science Center
P.O. Box 52
Parkville, Victoria 3052
AUSTRALIA

*Publishers of a quarterly magazine, Sunworld,
and ISES News.*

ICI Australia Ltd.

ICI House
1 Nicholson Street
Melbourne, Victoria 3000
AUSTRALIA

Bridgland, M. D.
Executive Director
Member of National Energy Advisory
Committee.

Jones, A. G.
Solar thermal applications in desalination.

Laven, A.
Plastic solar heating panels.

IPSEP

Glenwarrin Mill
New South Wales 2429
AUSTRALIA

Nicholls, Jeff
*Concentrating collectors; Tubular collectors;
Flat plate collectors.*
(065) 504 518

James Cook University of North Queensland

Department of Chemistry and Biochemistry

Townsville, Queensland 4811
AUSTRALIA

Richards, G. N.
*Bioconversion and solar energy information
exchange.*
79-3711

Department of Civil and Systems Engineering

Townsville Queensland 4811
AUSTRALIA

Stark, K. P.
*Domestic and industrial hot water heating for
systems employing flat plate absorbers for
energy collection.*
79-3711

Department of Engineering

Townsville, Queensland 4811
AUSTRALIA

Close, D. S.
*Studying the use of absorbent bed energy
storage and its incorporation in a solar
timber-drying system.*
79-3711

K.G.K. Simpson Pty. Ltd.

Simpson, K.
Managing Director
Member of Western Australia Solar Energy
Research Institute.

Kenneth H. Brock and Son Pty. Ltd.

37-39 Glenvale Crescent
Mulgrave, Victoria 3170
AUSTRALIA

*Distributes low-iron tempered solar glass avail-
able in three grades: Sunadex, Solatex and
Starlux.*

Lucas Industries Australia Ltd.

1156 Nepean Highway
Cheltenham, Victoria 3192
AUSTRALIA

*Distributes the range of Solar Power Corp.
Photovoltaic Panels-EM and P-1002 Series
Cells; Compatible battery installations.
Provides computer system design and
quotation service for solar electric generator
systems; Installation and maintenance; Field
services.*

Battery Division

Brisbane, Queensland
AUSTRALIA

Reid, Neill
Manager
Sells photovoltaic arrays for cathodic protection.

Luke Air Conditioning

Cook Street
Mitcham, Victoria 3132
AUSTRALIA

Distributes solar heating, air conditioning and hot water systems.

Malleys Ltd.

Stanley, S.
Manufacturing and marketing feasibility studies for large-scale production of solar energy collectors.

Monash University

Wellington Road
Clayton, Victoria 3168
AUSTRALIA

Endersbee, L. A.
Dean of Faculty of Engineering
Member of National Energy Advisory Committee.
(03) 544-0811

Williams, A.
Methane digesters (rural).
(03) 544-0811

Department of Electrical Engineering

Wellington Road
Clayton, Victoria 3168
AUSTRALIA

Bonwick, W. J.
Electrical generation.
(03) 544-0811

Department of Mechanical Engineering

Wellington Road
Clayton, Victoria 3168
AUSTRALIA

Gani, R.
Industrial process heat; Thermal heating.
(03) 544-0811

Motorola Semiconductor Products

Suite 204, Regent House
37-43 Alexander Street
Crows Nest
Australian Capital Territory 2065
AUSTRALIA

Australian agent distributes for Motorola Inc., manufacturers of power generation and photo-voltaic systems.

Mt. Gravatt College of Advanced Education

Department of Science

P.O. Box 82
Mt. Gravatt, Queensland 4122
AUSTRALIA

Swindell, Richard F.
Construct and test a series of flat bed absorbers.

Murdoch University

School of Mathematical and Physical Sciences

Murdoch, Western Australia 6153
AUSTRALIA

Parker, A. J.
Member of Western Australia Solar Energy Advisory Committee.
09-3322211

National Energy Advisory Committee (NEAC)

c/o Australia and New Zealand Banking Group Ltd.

351 Collins Street
Melbourne, Victoria
AUSTRALIA

Bruns, G. R.
Chief Economist

Bull, F. B.
Engineering Consultant

Fitz-Gerald, M. M.
Alderman

Lynch, G. J.
Chairman

The function of NEAC is to advise the Minister for National Development on matters relating to energy.

National Energy Research, Development and Demonstration Council (NERDDC)

Canberra,
Australian Capital Territory 2600
AUSTRALIA

Federal funding for solar projects.

National Standards Laboratory

Division of Physics

University Grounds, City Road
Chippendale, New South Wales 2008
AUSTRALIA

McAllan, J. V.

National Times

Box 506
GPO Sydney, New South Wales 2001
AUSTRALIA

Summers, Anne

Senior Reporter
World Press Institute.

New South Wales Institute of Technology

Broadway
Sydney, New South Wales 2007
AUSTRALIA

Baker, Earl

School of Physics and Materials

P.O. Box 123
Broadway, New South Wales 2007
AUSTRALIA

Farrow, R. H.

Microprocessor-controlled data-logger for solar energy measurements.

Gammon, R. B.

Photovoltaics.

Guitronich, John E.

Developed a new stationary collector design.

Messell, Harry

Evacuated tube cell-glass collector; The use of electrolytically deposited layers of selective absorbers of solar radiation; Cadmium sulphide cells; Solar absorption cycle cooling system for buildings.

Moon, A. R.

Experimentally investigating the influence of crystal microstructure on the solar radiation absorbing properties of chromium type selective absorbers.

Riddiford, C. L.

Determination of the connection between film topography and the variation of spectral reflectance dealing with wavelength in relation to the deposition conditions of the chrome black.

Riley, M.

The use of electrolytically deposited layers of selective absorbers of solar radiation; Cadmium sulphide cells; Solar absorption cycle cooling system for buildings.

Sabine, T. M.

Solar heating; Refrigeration; Effects of solar energy on the electricity supply grid; Solar radiation.

Smith, G. B.

Modeling the optical behavior of chrome-black films on metal substances in terms of film structure and composition; Solar radiation; Cadmium sulphide cells; Cooling system.

Sullivan, E. P. A.

Insolation mapping employing photochemical pyranometers.

New South Wales, State of

Department of Public Works

Nieberl, N.

Mechanical Engineer
Member of New South Wales Solar Energy Advisory Committee.

Electricity Authority of New South Wales

Ward, J. A.

Engineer

North Shore Gas Company Limited

Hume, H.

General Manager
Member of National Energy Advisory Committee.

P. B. M. Marketing Brokers Pty. Ltd.

248 St. Kilda Road
St. Kilda, Victoria 3182
AUSTRALIA

Distributes domestic solar hot water systems; Solar swimming pool heaters; Solar pumps for forced circulation systems; Battery chargers; Pool blankets.

Penguin Solar Heating

315 Moggill Road
Indooroopilly, Queensland 4069
AUSTRALIA

Distributes Suncell Oasis swimming pool solar heating system; Solacover heat-retention pool cover.

Philips Electric Components and Materials (ELCOMA)

P.O. Box 50
Lane Cove,
Australia Capital Territory 2006
AUSTRALIA

Distributes Philips BPX47A silicon cell array photovoltaic panels. Philips Applications Engineering Service offers full technical back-up.

Pilkington ACI Operations Pty. Ltd.

470 Collins Street
Melbourne, Victoria 3000
AUSTRALIA

Burrell, A. C.

Investigation of the potential, and carry out work aimed at the development of a solar energy collector with particular emphasis in the use of glass.

Pipeline Authority

c/o Australia and New Zealand Banking Group Ltd.
351 Collins Street
Melbourne, Victoria
AUSTRALIA

Norgard, J. D.

Chairman
Member of National Energy Advisory Committee.

Post Master General Department Long Line and Telepower Equipment Branch

7th Floor, 57 Boerke Street
Melbourne, Victoria 3000
AUSTRALIA

Holderness, A. L.

Solar power systems within the APO. The Department has installed a 73.5 W, 12 V solar array for a trial period at Wonaminta Hill to power a vhf subscriber concentrator.

Mack, M. R.

Solar powered systems within the APO. The department has installed a 73.5 W, 12 V solar array for a trial period at Wonaminta Hill to power a vhf subscriber concentrator.

Queensland Institute of Technology

Department of Physics

Gardens Point
Brisbane, Queensland 4000
AUSTRALIA

Davies, J. A.

Photovoltaics.

Edmonds, I. R.

Photovoltaics; Chemical conversion.

Queensland, State of

288 Edwards Street
Brisbane, Queensland
AUSTRALIA

Allen, R. J.

Chief Government Geologist

Noume, M. L.

*Government Gas Engineer
Member of Queensland Energy Research
Advisory Council.*

Department of Commercial and Industrial Development.

288 Edwards Street
Brisbane, Queensland
AUSTRALIA

Baker, G. L.

Deputy Director

Kelly, F. H. C.

Production of ethanol from sugar cane.

Department of Mines

288 Edwards Street
Brisbane, Queensland
AUSTRALIA

Promotion of solar energy research and development.

Norrie, A. W.

Consultant

Developing a computer program to be used for processing of solar radiation data for several locations to facilitate the installation of solar heating equipment and to obtain optimum use of solar energy.

Woods, J. T.

Under Secretary

Chairman, Queensland Energy Resources Advisory Council which is responsible for the planning and exploitation of the state's energy resources and recommends plans for the optimum use of all sources.

Queensland Coal Board

288 Edwards Street
Brisbane, Queensland
AUSTRALIA

Cook, G. W.

Chairman
Member of Queensland Energy Resources
Advisory Council.

Queensland Energy Resources Advisory Council

288 Edwards Street
Brisbane, Queensland
AUSTRALIA

Cox, B. J.

State Mining Engineer

Queensland Sun Pool Heating

12 Relimba Street
Kimberley Park, Queensland 4128
AUSTRALIA

*Distributes Fafco swimming pool heating system
in Queensland.*

Quenton Optics Pty. Ltd.

576-78 Port Road
Allenby Gardens, Queensland 5009
AUSTRALIA

*Distributes Oriel Corp. manufacturers of solar
cell testing and calibration instruments.*

R and D Instruments

2 Corr Street
Moorabin, Victoria 3189
AUSTRALIA

*Distributes instrumentation for solar
applications.*

R. A. Venn Pty. Ltd.

67-71 Doggett Street
Valley, Queensland 4006
AUSTRALIA

*Distributes Philips silicon solar cells in
Queensland.*

S. W. Hart and Co. Pty. Ltd.**Research and Development**

105 Fitzgerald Street
Perth, Western Australia 6000
AUSTRALIA

*Manufactures domestic and industrial solar hot
water systems.*

Riley, H. J.

Manager
Industrial process heat design and development.

Self Sufficiency Supplies

98 Excelsior Parade
Toronto,
Australian Capital Territory 2283
AUSTRALIA

*Distributes Solahart hot water systems, Fafco
solar swimming pool heaters, Bioloo and Ecolet
self-contained composting toilets, Dunlite wind
generators and accessories, Billabong
hydraulic rams, Cinva Ram Earth Block Press,
Philips and Lucas photovoltaic cells.*

Shell Company of Australia Ltd.

Shell Corner
155 William Street
Melbourne, Victoria 3001
AUSTRALIA

Douglas, R. A. N.

Commercial Manager and Chairman's
Representative.
Chairman of Western Australia Solar Energy
Advisory Committee.

**Simpson, Kotzman and Partners
Pty. Ltd. Consulting Engineers**

Solar installations design.

Small's Solar Heeta Co. Pty. Ltd.

10 Goongarrie Street
Bayswater, Western Australia 6053
AUSTRALIA

Small, H. C.

*An inexpensive lightweight air heater used for
space heating applications.*

**Solar Appliances Sales and
Service**

48 Chandos Street
St. Leonards,
Australian Capital Territory 2065
AUSTRALIA

*Distributes and installs Fin-Tech products and
materials for manufacturing solar heaters.*

Solar City/Metalcraft

P.O. Box 175
Neutral Bay, Brisbane
Queensland 2089
AUSTRALIA

Thomsen, R. S.

President and Marketing Director
*Has been in solar business for four years.
Markets hot water systems and air
conditioning.*

Solar Energy Industries Association of Australia

c/o Metal Trade Industry Association
165 Eastern Road
South Melbourne, Victoria 3205
AUSTRALIA

*To help further development of the solar
industry market, this group supplies names of
solar appliance, equipment and component
manufacturers and wholesalers to members.
The Association has invited US solar
companies to use the Association as a vehicle
for promoting product information.*

Ford, Hector L.

*Helping further develop the solar industry
market.*

Wallenius, Kai

*Helping further develop the solar industry
market.*

Solar Energy Research Institute of Western Australia (SERIWA)

365 Wellington Street
Perth, Western Australia 6000
AUSTRALIA

*Solar air conditioning; Improvements in solar
collector design; Industrial water heating;
Solar energy in building design; Small-scale
electricity production; Solar cells; Wind
energy systems; Solar radiation and wind
measurement.*

Booth, Robert R.

Chairman
*Testing wind generators, a solar thermal
generator and a solar cell plant.*

Hammond, C. G.

Director

Saunders, Susan

Executive Officer
*The Institute's responsibilities include estab-
lishing solar research and development
priorities and screening, funding, monitoring,
and evaluating solar research projects in the
following program areas: solar air con-*

*ditioning, solar collector design, industrial
water heating, passive design, etc.
326-4240*

Solar Film Products

124 Lutwyche Road
Windsor, Queensland 4030
AUSTRALIA

Smetana, Bill

President

*Imports various solar products including solar
window films, and photovoltaic panels.
Expected sales in 1979 to gross \$65,000.*

Solarex Pty. Ltd.

33 Bellong Avenue
Regents Park, New South Wales
AUSTRALIA

Ford, Brian

Manager

*The firm is a 50-50 joint venture with Solarex,
Rockville, Md. Their current market is in the
use of photovoltaic panels for communication
and navigation systems.*

Solarroof Pty. Ltd.

23 The Crofts
Richmond, Victoria 3121
AUSTRALIA

*Distributes SK-1 Hi-Heater Aco Collector panels
and other solar energy equipment.*

Solarway Australia

193 Gilbert Street
Adelaide, Queensland 5000
AUSTRALIA

*Distributes Fafco swimming pool heating systems
in South Africa.*

South Australia State Energy Research Advisory Committee (SENAC)

P.O. Box 151
Eastwood, South Australia 5063
AUSTRALIA

Funding; Promotes solar energy projects.

Burnside, J. P.

General Manager

Webb, B. P.

Chairman

*Assesses R and D projects in South Australia
and recommends to the Government those
projects which require financial assistance.*

South Australia, State of**Department for the Environment**

P.O. Box 151
Eastwood, South Australia 5063
AUSTRALIA

Dempsey, R.

Director

Member of South Australia State Energy
Research Advisory Committee.

Department of Economic Development**Economics Division**

P.O. Box 151
Eastwood, South Australia 5063
AUSTRALIA

Smith, A. M.

Director

Member of South Australia State Energy
Research Advisory Committee.

Department of Mines and Energy

P.O. Box 151
Eastwood, South Australia 5063
AUSTRALIA

Johns, R. K.

Deputy Director

Member of South Australia State Energy
Research Advisory Committee.

Premier's Department**Policy Division**

P.O. Box 151
Eastwood, South Australia 5063
AUSTRALIA

Smith, R. F. I.

Member of South Australia State Energy
Research Advisory Committee.

Trade and Development Department

P.O. Box 151
Eastwood, South Australia 5063
AUSTRALIA

Davies, W. L. C.

Director General

Member of South Australia State Energy
Research Advisory Committee.

South Australian Gas Company

35 Waymouth Street
Adelaide, South Australia
AUSTRALIA

Sells solar hot water systems, a Beasley
pre-heat combination for gas and solar with a
low pressure hot water storage tank at
\$700.00 with a one year warranty.

Iwanicki, W.

Thermal heating; Appliance design; Solar
panels.

Space Age

13 Minnie Street
Belmore,
Australian Capital Territory 2192
AUSTRALIA

Distributes the range of Beasley products,
Reflecto-shield solar control film; Provides
installation of above products.

**State Electricity Commission of
Victoria****Chapman, R. G.**

Assistant General Manager

Hayes, J. E.

Domestic solar water heating.

Murray, E. D.

State Electricity Commissioner
Member of National Energy Advisory
Committee.

Smith, G. E.

Domestic solar water heating.

**State Energy Commission of
Western Australia**

c/o Australia and New Zealand
Banking Group Ltd.
351 Collins Street
Melbourne, Victoria
AUSTRALIA

Kirkwood, J. B.

Commissioner; Chairman and Chief Executive.
Member of Australian Department of National
Development.

Sun Heating and Cooling

25 Chard Road
Brookvale,
Australian Capital Territory 2100
AUSTRALIA

Distributes Sola-ray close-coupled systems;
Beasley systems.

Sunsystems Pty. Ltd.

124 Lutwyche Road
Windsor, Queensland 4030
AUSTRALIA

Distributes and installs Solaquest products in
Queensland; Solarfilm Products window film;
Photovoltaic panels.

Systems International

64-66 Wollongong Street
Fyshwick,
Australian Capital Territory
AUSTRALIA

Distributes Solarhot domestic hot water systems, solar swimming pool heating systems, solar air conditioning systems, solar electric energisers; Provides consulting engineers on solar applications.

Tasmania Energy and Resources Committee

Lohrey, A. B. K.

Chairman and Minister

The Committee's responsibility is to encourage energy conservation in Tasmania; Also to gather all information relating to the State's mineral and energy requirements.

Tasmania, State of Rivers and Water Supply Commission

Inglis, I. G.

Chairman

Member of Tasmania Energy and Resources Committee.

Technologies Pty. Ltd.

10th Floor
Guardian Royal Exchange Building
380 Queen Street
Brisbane, Queensland 4001
AUSTRALIA

Their principal service in the field of solar technology is the design, evaluation and economic justification of solar-assisted water heating systems using a computation method developed and adopted to a mini-computer.

Telecom Australia Engineering Library

GPO Box 1183
Adelaide, South Australia 5001
AUSTRALIA

Heinrich, R.

Tom O'Donohue and Associates

8 Wild Life Parade
North Balwyn, Victoria 3104
AUSTRALIA

Distributes Solarcharger electricity generator manufactured by PDC Labs, USA.

Universal Solar Pty. Ltd.

Fidelity Place
12 Zamia Street
Sunnybank, Queensland 4109
AUSTRALIA

Distributes and installs Sunmaster window films throughout Australia and the South Pacific.

University of Adelaide

Department of Mechanical Engineering

Adelaide, South Australia 5001
AUSTRALIA

Luxton, R. E.

Computer based building; Thermal energy system.
223-4333

Department of Physical and Inorganic Chemistry

Adelaide, South Australia 5001
AUSTRALIA

Laurence, G. S.

Solar electrolysis.
223-4333

University of Architecture and Town Planning

Adelaide, South Australia
AUSTRALIA

Kendrick, J. D.

All solar technologies.

University of Melbourne

Department of Mechanical Engineering

Parkville
Victoria 3052
AUSTRALIA

Charters, W. W. S.

Heat pumps; Heating and cooling; Mirrors; Grain drying.
(03) 341-6744

Chen, W. D.

Selective surfaces; Refrigeration; Solar boosted heat pumps; Solar collectors; Heat transfer.
345-1844

Dixon, C. W.

Selective surfaces; Refrigeration; Solar boosted heat pumps; Solar collectors; Heat transfer.
345-1844

University of New South Wales**Department of Architecture**

P.O. Box 1
Kensington
New South Wales 2033
AUSTRALIA

Ballinger, John

Lecturer
Passive solar houses; Development of low-cost trickle-type collector; Domestic hot water; Heating swimming pools; SOLARCH Experimental House, Broken Hill.

School of Biological Technology

P.O. Box 1
Kensington, New South Wales 2033
AUSTRALIA

Dunn, N. W.

Produce ethanol through cellulosic agricultural waste materials.
663-0351

Gray, P. P.

Ethanol production from cellulosic agricultural waste materials.
663-0351

Rogers, Peter L.

Computer control and optimization for production increase of fermentation alcohol from carbohydrate materials.
663-0351

School of Chemistry

P.O. Box 1
Kensington, New South Wales 2033
AUSTRALIA

Garnett, J. L.

Photoconducting polymeric systems; Biological processes; Photovoltaics; Energy conversion.
663-0351

School of Electrical Engineering

P.O. Box 1
Kensington, New South Wales 2033
AUSTRALIA

Davies, Lou W.

Mis and Misim Solar Cells; Solar heating; Fabrication; Photovoltaics; Solar radiation observations.
663-0351

School of Mechanical and Industrial Engineering

P.O. Box 1
Kensington, New South Wales 2033
AUSTRALIA

Ang, C. C.

Solar radiation observations; Photovoltaic conversion; Solar water heaters.
663-0351

Gan, B. L. E.

Solar radiation observations; Photovoltaic conversion; Solar water heaters.
663-0351

Morrison, G. L.

Collection of solar data for Sydney and development of heat table prediction for solar systems.
663-0351

Sapsford, C. M.

Solar radiation observations; Photovoltaic conversion; Solar water heaters.
663-0351

Sivyer, P.

Solar radiation observations; Photovoltaic conversion; Solar water heaters.
663-0351

School of Physics

P.O. Box 1
Kensington, New South Wales 2033
AUSTRALIA

Haneman, D.

Solar thermal power; Selective surfaces; Solar ponds; Solar energy conversion.
663-0351

Steenbeske, F. M.

Refrigeration; Hydrogen production; Thermal electric generation; Linear concentrators; Concentrators for industry.
663-0351

Szulmayer, W.

Linear refracting concentrators.
663-0351

Department of Applied Physics

P.O. Box 1
Kensington, New South Wales 2033
AUSTRALIA

Goldsmid, H. J.

Thermoelectric energy conversion; Heat conduction; Absorption of solar radiation.
663-0351

Harris, L. B.

Thermoelectric energy conversion; Heat conduction; Absorption of solar radiation; Refrigeration; Hydrogen production; Linear concentrators.
663-0351

Solar Energy Group

P.O. Box 1
Kensington, New South Wales 2033
AUSTRALIA

Harting, E.

A stationary prism concentrator for solar cells.

Mills, D. R.

A stationary prism concentrator for solar cells.

School of Physics and Materials

P.O. Box 1
Kensington, New South Wales 2033
AUSTRALIA

Green, Martin A.

Development of low cost MIS solar cells.
663-0351

Department of Theoretical Physics

P.O. Box 1
Kensington, New South Wales 2033
AUSTRALIA

Hora, Heinrich

Solar cells; Organic materials.
663-0351

Lowy, D. N.

Semi-conductors; Measurements; Design.
663-0351

Broken Hill Division

Department of Mining and Mineral Sciences

P.O. Box 334
Broken Hill, New South Wales 2880
AUSTRALIA

MacLaine-Cross, I. L.

*Solar air conditioning system components;
Fowler's Gap Arid Zone Research Station;
Solar powered weather station.*
663-0351

School of Chemistry

P.O. Box 234
Broken Hill, New South Wales 2880
AUSTRALIA

O'Brien, K. G.

Nitrogen fixation through solar energy.
663-0351

University of Newcastle

Newcastle, New South Wales 2308
AUSTRALIA

George, D. W.

Vice-Chancellor

*Member of National Energy Advisory
Committee.*

68-0401

Department of Mechanical Engineering

Newcastle, New South Wales 2308
AUSTRALIA

Moore, J. P.

Space heating and cooling.

University of Queensland

Department of Agriculture

St. Lucia, Brisbane
Queensland 4067
AUSTRALIA

Asher, C. J.

*Mineral nutrition of cassava, its growth and
development with different environmental
characteristics.*

07-377111

Edwards, D. G.

*Mineral nutrition of cassava, its growth and
development with different environmental
characteristics.*

07-377111

Evenson, J. P.

*Mineral nutrition of cassava, its growth and
development with different environmental
characteristics.*

07-377111

Department of Architecture

Architectural Science Unit

St. Lucia, Brisbane
Queensland 4067
AUSTRALIA

Arch, M.

*The design of "Solar City", 35 km south of
Brisbane, which is planned to include 4000
houses and all supporting facilities of a self-
contained community of 15-18,000 people.*

07-377111

Szokolay, S. V.

*Employing solar radiation data in constructing
a "design year" of total hourly solar radiation;
Flat plate collectors; Solar air conditioning;
Solar architecture.*

07 377111

Department of Chemical Engineering

St. Lucia, Brisbane
Queensland 4067
AUSTRALIA

Greenfield,

*A small-scale pilot fermenting and distilling
plant to extract alcohol from cane sugar.*

07-377111

Nicklin, Don J.

Production of ethanol.

07-377111

Department of Chemistry

St. Lucia, Brisbane
Queensland 4067
AUSTRALIA

Iyons, Laurence E.

Bioconversion; Chemical conversion; Photo-electrochemical cells; Solar thermal power; Thermal electric conversion.

07-377111

Morris, G.**Department of Electrical Engineering.**

St. Lucia, Brisbane
Queensland 4067
AUSTRALIA

Darveniza, M.

Developing a solar-powered Rankine-cycle turbo-alternator for electricity purposes.

07-377111

Gunn, M. W.

Photovoltaics; Semiconductors; Testing; Thermal power module.

07-377111

Jordan, T. A.

Assessing the impact of solar energy utilization on electric power systems.

07-377111

Yeow, Y. T.

MOS solar cells; Fabrication.

07-377111

Department of Mechanical Engineering

St. Lucia, Brisbane
Queensland, 4067
AUSTRALIA

Ahmad, I.

Development of a thermal-electrical solar power module; Domestic solar water heaters; Development of a Stirling cycle solar engine.

07-377111

Pillay, R. K.

Development of thermal-electrical solar power module; Domestic solar water heaters; Development of a Stirling cycle solar engine.

07-377111

Sheridan, N. R.

Refrigeration; Solar cooling; Air conditioning; Industrial process heat; Concentrating solar collectors; Predict the performance of a photovoltaic total energy system; Development of Stirling Cycle solar engine and thermal-electrical solar power module.

07-377111

University of Sydney

Sydney, New South Wales 2006
AUSTRALIA

Fletcher, Clive

Engineer

Sending up large unmanned gliders carrying wind turbines. The electricity produced from these would be transmitted to the ground by tethering cables.

Roberts, Bryan

Engineer

Sending up large unmanned gliders carrying wind turbines. The electricity produced from these would be transmitted to the ground by tethering cables.

Department of Architecture

Sydney, New South Wales 2006
AUSTRALIA

Greenland, J. J.

Studying the implications of solar energy in the design of buildings and the effect of heat control glass on solar energy fluxes.

692-1122

Department of Mechanical Engineering

Sydney, New South Wales 2006
AUSTRALIA

Krusi, P.

Development of a solar simulator.

692-1122

Schmid, R. R.

Development of a solar simulator.

692-1122

Department of Physics

Sydney, New South Wales 2006
AUSTRALIA

Collins, A. R.

Research of surface coatings on all-glass tubular evacuated collectors.

692-1122

Harding, Geoffrey L.

Research of surface coatings on all-glass tubular evacuated collectors.

692-1122

Horwitz, C.

Research of surface coatings on all-glass tubular evacuated collectors.

692-1122

McKenzie, D. R.

Chairman

Research of surface coatings on all-glass tubular evacuated collectors; Selective surfaces; Photo-thermal conversion; Plant conversion.

692-1122

Department of Theoretical Physics

Sydney, New South Wales 2006
AUSTRALIA

Bassett, I. M.

Diffuse reflectors in nonimaging optics.

School of Civil Engineering

Sydney, New South Wales 2006
AUSTRALIA

Roderick, J. W.

Challis Professor

Member of National Energy Advisory Committee.
692-1122

School of Physics

Sydney, New South Wales 2006
AUSTRALIA

Window, Brian

Testing all-glass evacuated collectors; Industrial process heat; Solar cooling; Theoretical analysis and experimentation on the optical properties of mixtures of metal particles in dielectrics.

692-1122

Energy Research Center

Sydney, New South Wales 2006
AUSTRALIA

Pitman, M. G.

Selective surfaces; Photo-thermal conversion; Plant conversion; Testing an evacuated double-wall glass collector; Energy capture and transfer in photosynthesis.

692-1122

Prince, R.

Selective surfaces; Photo-thermal conversion; Plant conversion; Testing evacuated double-wall glass collector.

692-1122

Still, J. C.

Selective surfaces; Photo-thermal conversion; Plant conversion; Testing evacuated double-wall glass solar energy collector.

692-1122

Watson-Munro, Charles N.

Wills Professor of Plasma Physics

Research of surface coatings on all-glass tubular evacuated collectors; Electrolytically deposited layers of selective absorbers of solar radiation; Cadmium sulphide cells; Air conditioning.

692-1122

University of Tasmania

Department of Physics

P.O. Box 252 C
Hobart, Tasmania 7001
AUSTRALIA

Waterworth, M. D.

Interested in theoretical study of performance of crossed gratings and grids as selective solar absorbers.

230561

University of Western Australia

Nedlands, Western Australia 6009
AUSTRALIA

Billings, A. R.

Acting Deputy Vice Chancellor
380-3838

Department of Mechanical Engineering

Nedlands, Western Australia 6009
AUSTRALIA

Carruthers, D. D.

Concentrating collectors; Thermal conversions; Heating and cooling.

380-3838

Driver, Philip M.

Graduate Student

Concentrating collectors; Thermal conversion; Selective coatings.

Landro, Bernard

Graduate Student

Concentrating collectors; Thermal conversion; Selective coatings.

Landro, Ugo

Graduate Student

Concentrating collectors; Thermal conversion; Selective coatings.

Langridge, D.

Graduate Student

Concentrating collectors; Thermal conversion; Selective coatings.

McCormick, P. G.

Concentrating collectors; Thermal conversion; Heating and cooling.

380-3838

Tan, J. F.

Cylindrical "elastical" concentrating solar collectors.

Department of Physics

Nedlands, Western Australia 6009
AUSTRALIA

Anderson, R. A.

Research of various systems to convert thermal energy into magnetic forces employing ocean thermal energy conversion technology.

380-3838

Maslen, E. N.

Application of atmospheric vortices in solar power generation.

380-3838

Quickenden, T. I.
Solar thermal conversion.
380-3838

Department of Physical and Inorganic Chemistry

Yim, G. K.
Evaluating the suitability of the photogalvanic effect from the conversion of solar energy into electricity.
380-3838

Victoria Solar Energy Research Committee

Funding; Promotes solar energy projects.
Worner, H. K.
Chairman

Victoria, State of

Department of Minerals and Energy

Melbourne, Victoria
AUSTRALIA

Court, B. W.
Secretary

The Victorian Solar Energy Research Committee is the official organ of the Victorian Government to promote the use of solar energy in the public and industrial sectors.

Mendleson, J.
Senior, Chief Engineer (Energy)

W. E. Bassett and Partners, Pty. Ltd.

47 Havelock Street
West Perth, Western Australia 6010
AUSTRALIA

Mackenzie, Robin

Water Heating Service Co.

Cavendish and Torrington Avenues
Devon Park, Queensland 5008
AUSTRALIA

Distributes Beasley solar products in South Australia.

Western Australia Institute of Technology

Hayman Road
South Bentley, Western Australia 6102
AUSTRALIA

Harler, J. J.
Investigating the use of solar hot water systems for the State Fuel and Power Commission.

Department of Electrical Engineering

Hayman Road
South Bentley, Western Australia 6102
AUSTRALIA

Marshall, Trevor
Solar thermal energy conversion.

School of Engineering and Surveying

Hayman Road
South Bentley, Western Australia 6102
AUSTRALIA

Nash, A. H.
Dean

Nowak, S.
Thermal heating; Measuring; Flat plate collectors.

Western Australian School of Mines

School of Mining and Mineral Technology

Jones, I. O.
Dean

Member of Western Australia Solar Energy Advisory Committee.

Westinghouse Electric Power Systems

G.P.O. Box 4203
Sydney, New South Wales 2001
AUSTRALIA

Cohn, Walter
Research on silicon chips.

Yazaki Pacific Pty. Ltd.

165 Eastern Road
South Melbourne, Victoria 3205
AUSTRALIA

Sales and distribution of Yazaki Blue Panel flat plate collector, solar air conditioning systems, solar water heating systems. Provides: presales, applications, engineering assistance and post sales maintenance and service.

The International Manufacturers Data Base

International Manufacturers Data Base (INMFG) is a subset of the Manufacturers Data Base maintained by the Solar Energy Information Data Bank (SEIDB) at the Solar Energy Research Institute (SERI). As of May 1980, this data base contains approximately 545 international manufacturers producing solar and solar-related equipment. Solar equipment includes solar systems, components, and materials and products that convert, conserve, store, transfer, measure, or control solar energy in all solar technologies. Data base records include company name, address, telephone, telex, affiliations, executives and their titles, solar exports, tradenames and trademarks, patent information, and solar products. The format presented contains company name, address, and products as of January 1980. While these records are updated as frequently as possible, THE INFORMATION CONTAINED NONETHELESS CHANGES RAPIDLY. More complete and current records may be obtained by contacting SERI International Division (303) 231-1839.

Ahearn Main and Stott Pty. Ltd.

23 Wrixon Avenue
East Brighton, Victoria 3187
AUSTRALIA

Nonconcentrating Collectors

Amalgamated Wireless Australia Ltd.

P O Box 96
North Ryde, New South Wales 2113
AUSTRALIA

Solar Cells
Tower Focus Power Plant Components

Autonomous Energy Systems

25 McLachlan Street
Mount Waverly, Victoria 3149
AUSTRALIA

Domestic Hot Water Systems

Bax Products Pty. Ltd.

365 West Botany Street
Rockdale, New South Wales 2216
AUSTRALIA

Domestic Hot Water Systems

Beasley Industries Pty. Ltd.

Bolton Avenue
Devon Park, South Australia 5008
AUSTRALIA

Domestic Hot Water Systems

Braemar Appliances Pty. Ltd.

400 Princess Highway
Noble Park, Victoria 3174
AUSTRALIA

Storage Tanks
Thermal Collector Subsystems
Domestic Hot Water Systems

Braemar Industries Ltd.

400 Princess Highway
Noble Park, Victoria 3174
AUSTRALIA

Domestic Hot Water Systems
Thermal Collector Subsystems
Storage Tanks

Coles, K. G. & Co. Pty. Ltd.

15-17 Bourke Road
Alexandria, New South Wales
AUSTRALIA

Thermal Collector Subsystems

Davey, F. W. and Co. Pty. Ltd.

P O Box 120
Oakleigh, Victoria 3166
AUSTRALIA

Wind Energy Subsystems
Wind Turbine Generator Systems

Dunlite Electrical Co. Pty. Ltd.

21-27 Frome Street
Adelaide, South Australia
AUSTRALIA

Small Wind Turbine Generator Systems

Fin-Tech Industries Pty. Ltd.

40 Ferndell St.
Guildford, New South Wales 2161
AUSTRALIA

Thermal Collector Subsystems

Gra-Mall Management Pty. Ltd.

337 Prospect Road
Blair Athol, South Australia 5084
AUSTRALIA

Nonconcentrating Collectors
Thermosiphon Water Heaters
Storage Tanks

Indop Marketing Pty. Ltd.

133 Alexander Street
Crow's Nest, New South Wales 2065
AUSTRALIA

Solar Appliances

John Danks and Sons

27 Doody Street
Alexandria, New South Wales 2015
AUSTRALIA

Ram Pumps

Kounis Metal Industries Ltd.

Myaree, Western Australia
AUSTRALIA

Cooling Systems

Lucas Industries Australia, Batteries Div.

1156 Nepean Highway
Cheltenham, Victoria 3192
AUSTRALIA

Solar Cell Power Generation

Lyons and Pierce

4 Collingwood Street
Osborne Park, Western Australia 6017
AUSTRALIA

Domestic Hot Water Systems

McMillan, K., Enterprises

One Tower Road
Newtown, Tasmania 7008
AUSTRALIA

Thermal Collector Subsystems

Needham Industries Pty. Ltd.

40 Collingwood Street
Osborne Park, Western Australia 6017
AUSTRALIA

Domestic Hot Water Systems

NSW Solar Heating Co.

16 Mary Parade
Rydalmere, New South Wales 2116
AUSTRALIA

Domestic Hot Water Systems

OBC International Marketing Pty. Ltd.

1396 Malvern Road
Tooronga, Victoria 3146
AUSTRALIA

Domestic Hot Water Systems

P. G. Solar Plates

10 Old Lake Road
Port Macquarie, New South Wales 2444
AUSTRALIA

Nonconcentrating Collectors

Philips

161 Starts Street
South Melbourne, Victoria
AUSTRALIA

Solar Cells

Pilkington ACI

470 Collins Street
Melbourne, Victoria 3000
AUSTRALIA

Glass

Plaspiline Industries

9-13 Wetherby Road
Doncaster, Victoria 3108
AUSTRALIA

Swimming Pool Covers

Pyrox Ltd.

Warrigal Road
Moorabbin, Victoria 3189
AUSTRALIA

Back-Up Water Heaters

Quirk's Victory Light Co. Pty. Ltd.

33 Fairweather Street
Bellvue Hills, New South Wales
AUSTRALIA

Wind Turbine Generator Systems

Raypak Australia Pty. Ltd.

195 Lennox Street
Richmond, Victoria 3121
AUSTRALIA

Nonconcentrating Collectors

Concentrating Collectors

Swimming Pool Heating Systems

Reliance Manufacturing Co.

160 Breakfast Creek Road
Newstead, Queensland 4006
AUSTRALIA

Solar Subsystems

Controllers

Rheem Australia Ltd.

Brodie Street
Rydalmere, New South Wales 2116
AUSTRALIA

*Domestic Hot Water Systems
Swimming Pool Covers*

S. W. Hart and Co. Pty. Ltd.

105 Fitzgerald Street
Perth, Western Australia 6000
AUSTRALIA

Domestic Hot Water Systems

Siddons Industries Ltd., Solar Energy Div.

58 Dougharty Road
Heidelberg West, Victoria 3081
AUSTRALIA

*Solar Assisted Heat Pump Systems
Nonconcentrating Collectors*

Small's Solar Heeta Co. Pty. Ltd.

10 Goongarrie Street
Bayswater, Western Australia 6053
AUSTRALIA

Domestic Hot Water Systems

Snowside Pty. Ltd.

701 Pacific Highway
Chatswood, New South Wales 2067
AUSTRALIA

Nonconcentrating Collectors

Sola-ray Appliances

6 Boag Road
Morley, Western Australia 6062
AUSTRALIA

Domestic Hot Water Systems

Solar Charge Australia

6 St. Ninians Crescent
Brighton, Victoria 3186
AUSTRALIA

Controllers

Solar Energy Installations

Webster Road and Hayward Street
Stafford, Queensland 4053
AUSTRALIA

Nonconcentrating Collectors

Solar Hardware Pty. Ltd.

9 Barry Drive Turner

Canberra City
Australian Capital Territory 2601
AUSTRALIA

*Nonconcentrating Collectors
Collector Support Subsystems*

Solar Tracing Systems

P O Box 1329
Mount Isa, Queensland 4825
AUSTRALIA

Tracking Devices

Solar Tube Installations

3 Norfolk Avenue
Wantira South, Victoria 3152
AUSTRALIA

Swimming Pool Heating Systems

Solarex Pty. Ltd.

33 Bellona Avenue
Regents Park, New South Wales 2143
AUSTRALIA

Nonconcentrating Collectors

Solarlite Heating Systems Pty. Ltd.

7 Alex Avenue
Moorabbin, Victoria 3189
AUSTRALIA

*Domestic Hot Water Systems
Swimming Pool Heating Systems*

Solarmatic Engineering Co.

81 Moss Street
Slacks Creek, Queensland 4127
AUSTRALIA

Storage Tanks

Solartech Industries

17 Brighton Road
St. Kilda, Victoria 3182
AUSTRALIA

Absorbers, Aluminum

Solarhot Water Systems

34 Flinders Road
Earlwood, New South Wales 2006
AUSTRALIA

Thermal Collector Subsystems

Solengineers Pty. Ltd.

2 Bennelong Road
Homebush Bay, New South Wales 2140
AUSTRALIA

*Flat Plate Collectors, Liquid
Back-Up Water Heaters*

Somer Solar Installations

Sandy Point Road
Somers, Victoria 3927
AUSTRALIA

*Flat Plate Collectors, Liquid
Swimming Pool Heating Systems*

Southern Cross Engine and Windmill Co.

One Grand Avenue
Granville, New South Wales
AUSTRALIA

*Pumps/Circulators
Windmill Systems
Wind Turbine Generator Systems*

Spectrolab

34-40 Clayton Road
North Clayton, Victoria 3168
AUSTRALIA

*Solar Cells
Energy Controls and Scientific Equipment*

Spectrum Australia Pty. Ltd., Suntrap

Solar Hot Water Systems, Solar Div.
409 Logan Road
Stones Corner, Queensland 4120
AUSTRALIA

*Nonconcentrating Collectors
Solar Subsystems*

Stoneplatt Electrical Pty. Ltd.

134 Springvale Road
Springvale, Victoria 3171
AUSTRALIA

Energy Controls and Scientific Equipment

Sunmaster

141 Herbert Street
Slacks Creek, Queensland 4127
AUSTRALIA

Domestic Hot Water Systems

Sunray Solar Systems

292 Pittwater Road
North Ryde, New South Wales 2113
AUSTRALIA

Domestic Hot Water Systems

Supreme Solar Systems

435 Scarborough Beach Road
Osborne Park, Western Australia 6017
AUSTRALIA

Domestic Hot Water Systems

Technico Electronics

53 Carrington Road
Marrickville, New South Wales 2204
AUSTRALIA

*Instrumentation and Measurement
Equipment*

The Broken Hill Pty. Co. Ltd.

BHP House
140 William Street
Melbourne, Victoria 3000
AUSTRALIA

Nonconcentrating Collectors

Thermax Electric Water Heaters Pty. Ltd.

P O Box 173
Hamilton Central, Queensland 4007
AUSTRALIA

Domestic Hot Water Systems

Turbon Engineering Pty. Ltd.

12 Bailey Street
Westend, Queensland 4101
AUSTRALIA

Domestic Hot Water Systems

Wesheat Hot Water Systems

1 Strong Street
Fremantle, Western Australia 6160
AUSTRALIA

Domestic Hot Water Systems

Western Ironworks Pty. Ltd.

1 Strang Street
South Fremantle, Western Australia 6162
AUSTRALIA

Domestic Hot Water Systems

Williams and Co. Pty. Ltd.

P O Box 22, Williams Parade
Dulwich, New South Wales 2203
AUSTRALIA

Windmill Systems

Wilson Solarite

16 Thornton Crescent
Mitcham, Victoria 3132
AUSTRALIA

*Domestic Hot Water Systems
Nonconcentrating Collectors*

Zane Solar Systems (Aust)

8 Sunshine Boulevard
Miami Keys, Queensland 4220
AUSTRALIA

Domestic Hot Water Systems

The International Projects Data Base

The ongoing International Projects Data Base (INPRO) development task, begun in August 1979, maintains approximately 300 international programs and projects as of May 1980. Interfacing with the International Contacts Data Base, this file contains information on solar energy programs undertaken by foreign countries and international organizations. Included are outstanding programs mentioned in professional journals, conference proceedings, and technical reports published since August 1978 that are representative of specific technological applications or programs of importance to the United States in its relationship with other nations. International solar activities monitored by the Solar Energy Research Institute (SERI) for the past 18 months are also a part of INPRO. Actual installations resulting from these programs are stored in the Installation Sites (SITES) Data Base. Data Base records, which can be searched across several variables, include project titles, acronyms, numbers, type of project activity, location, description, budget, beginning and completion dates, country sponsorship, and participants and their affiliations. The format presented contains the project identification number, title, location, beginning date, description, budget, and participants as of January 1980. While these records are updated as frequently as possible, THE INFORMATION CONTAINED NONETHELESS CHANGES RAPIDLY. More complete and current records may be obtained by contacting SERI International Division (303) 231-1839.

00436

Industrial Collectors Program

LOCATION:

New South Wales and South Australia

DESCRIPTION:

Beasley Industries has produced the first doubled glazed low-iron glass industrial collectors used in Australia. The collectors are installed on a demonstration project at Queanbeyan, New South Wales and are being installed on another at a brewery in Adelaide, South Australia. The absorber panels are coated with electrodeposited, chrome black selective surfaces.

PARTICIPANTS:

Commonwealth Scientific and Industrial
Research Organization (CSIRO)

Management (principal)

Morse, Roger N.

Director (Retired)

Solar Engineering Unit

Division of Mechanical Engineering

P.O. Box 89

East Melbourne, Victoria 3002

AUSTRALIA

Beasley Industries Pty. Ltd.

Management (level unknown)

Bolton Avenue

Devon Park, South Australia 5008

AUSTRALIA

Beasley Industries Pty. Ltd.

Management (level unknown)

Beasley, E.

Bolton Avenue

Devon Park, South Australia 5008

AUSTRALIA

00152

LOCATION:

Queanbeyan, New South Wales

DESCRIPTION:

Double glazed low-iron glass industrial collectors have been installed as a demonstration project at a soft drink plant. The absorber panels are coated with electrodeposited, chrome black selective surfaces.

PARTICIPANTS:

Beasley Industries Pty. Ltd.

Funding (level unknown)

Design (level unknown)

Supply (level unknown)

Bolton Avenue

Devon Park, South Australia 5008

AUSTRALIA

Beasley Industries Pty. Ltd.

Management (principal)

Beasley, E.

Bolton Avenue

Devon Park, South Australia 5008

AUSTRALIA

00153

LOCATION:

Adelaide, South Australia

DESCRIPTION:

Double glazed low-iron industrial collectors have been installed as a demonstration project at a brewery in Adelaide, South Australia. The absorber panels are coated with electro-deposited, chrome black selective surfaces.

PARTICIPANTS:

Beasley Industries Pty. Ltd.
 Funding (level unknown)
 Design (level unknown)
 Bolton Avenue
 Devon Park, South Australia 5008
 AUSTRALIA

Beasley Industries Pty. Ltd.
 Management (principal)
 Beasley, E.
 Bolton Avenue
 Devon Park, South Australia 5008
 AUSTRALIA

00162

LOCATION:

Melbourne

DESCRIPTION:

Solar Energy Demonstration Projects. a) Three Hot Water Systems and their instrumentation. b) Performance of Solar Hot Water Systems at: Somers Yacht Club at Somers Melbourne.

PARTICIPANT:

Commonwealth Scientific and Industrial
 Research Organization (CSIRO)
 Management (principal)
 Morse, Roger N.
 Director (Retired)
 Solar Engineering Unit
 Division of Mechanical Engineering
 P.O. Box 89
 East Melbourne, Victoria 3002
 AUSTRALIA

00439

Demonstration Projects Program**LOCATION:**

East Melbourne, Victoria in southeastern
 Victoria

DESCRIPTION:

The solar demonstration projects form part of Australia's contribution to the CCMS Solar Energy Pilot Study under which participating countries undertake to exchange information and cost effective applications of solar energy. Demonstration projects evaluated include: Solar Hot Water Systems at the Somers Yacht Club near Melbourne, the Sacred Heart College in Adelaide, the CSIRO Phytotron building in Canberra, and industrial process heating for can warming in Queanbeyan, New South Wales.

PARTICIPANT:

Commonwealth Scientific and Industrial
 Research Organization (CSIRO)
 Morse, Roger N.
 Director (Retired)
 Solar Engineering Unit
 Division of Mechanical Engineering
 P.O. Box 89
 East Melbourne, Victoria 3002
 AUSTRALIA

00163

LOCATION:

Adelaide, Australia

DESCRIPTION:

Solar Energy Demonstration Projects. a) Three Hot Water Systems and their instrumentation. b) Performance of Solar Hot Water Systems at: The Sacred Heart College in Adelaide.

PARTICIPANT:

Commonwealth Scientific and Industrial
 Research Organization (CSIRO)
 Management (principal)
 Morse, Roger N.
 Director (Retired)
 Solar Engineering Unit
 Division of Mechanical Engineering
 P.O. Box 89
 East Melbourne, Victoria 3002
 AUSTRALIA

00164

LOCATION:

Canberra, Australia

DESCRIPTION:

Solar Energy Demonstration Projects. a) Three Hot Water Systems and their instrumentation. b) Performance of Solar Hot Water Systems at: CSIRO Phytotron Building in Canberra.

PARTICIPANT:

Commonwealth Scientific and Industrial
Research Organization (CSIRO)
Management (principal)
Morse, Roger N.
Director (Retired)
Solar Engineering Unit
Division of Mechanical Engineering
P.O. Box 89
East Melbourne, Victoria 3002
AUSTRALIA

PARTICIPANT:

Broken Hill Proprietary Co. Ltd. (BHP)
Management (principal)
Supply (level unknown)
Funding (level unknown)
Design (level unknown)
Tegart, W. J.
Manager
Melbourne Research Laboratories
P.O. Box 274
Clayton, Victoria 3168
AUSTRALIA

00442

**Solar Energy in Mining Areas
Program**

LOCATION:

Clayton, Victoria in southeastern Australia

DESCRIPTION:

Development of a reduced vapor pressure water heating solar collector and solar powered air conditioning unit, aimed at mining areas. This Program has 4 projects: Port Hedlund; Melbourne; Paraburdoo; Groote Eylandt.

PARTICIPANT:

Broken Hill Proprietary Co. Ltd. (BHP)
Management (principal)
Supply (level unknown)
Funding (level unknown)
Design (level unknown)
Tegart, W. J.
Manager
Melbourne Research Laboratories
P.O. Box 274
Clayton, Victoria 3168
AUSTRALIA

00176

LOCATION:

Melbourne, Victoria in southeastern Australia

DESCRIPTION:

Development of a reduced vapor pressure water heating solar collector and solar powered air conditioning unit, aimed at mining areas. Presently operating in Melbourne.

PARTICIPANT:

Broken Hill Proprietary Co. Ltd. (BHP)
Management (principal)
Supply (level unknown)
Funding (level unknown)
Design (level unknown)
Tegart, W. J.
Manager
Melbourne Research Laboratories
P.O. Box 274
Clayton, Victoria 3168
AUSTRALIA

00177

LOCATION:

Port Hedlund, Western Australia

DESCRIPTION:

Development of a reduced vapor pressure water heating solar collector and solar powered air conditioning unit, aimed at mining areas. Is planned for operation at Port Hedlund.

PARTICIPANT:

Broken Hill Proprietary Co. Ltd. (BHP)
Management (principal)
Supply (level unknown)
Funding (level unknown)
Design (level unknown)
Tegart, W. J.
Manager
Melbourne Research Laboratories
P.O. Box 274
Clayton, Victoria 3168
AUSTRALIA

00175

LOCATION:

Groot Eylandt, an island off the eastern coast of Northern Territory

DESCRIPTION:

Development of a reduced vapor pressure water heating solar collector and solar powered air conditioning unit, aimed at mining areas. Presently operating in Groote Eylandt.

00178

LOCATION:

Paraburdoo, Australia

DESCRIPTION:

Development of a reduced vapor pressure water heating solar collector and solar powered air conditioning unit, aimed at mining areas. Is planned for operating at Paraburdoo.

PARTICIPANT:

Broken Hill Proprietary Co. Ltd. (BHP)
 Management (principal)
 Supply (level unknown)
 Funding (level unknown)
 Design (level unknown)
 Tegart, W. J.
 Manager
 Melbourne Research Laboratories
 P.O. Box 274
 Clayton, Victoria 3168
 AUSTRALIA

DESCRIPTION:

Measurement of solar irradiation and atmospheric turbidity and some assessment of the dependence of these parameters on geographical factors in South Australia. The improvement of design and precise calibration of radiometers as well as the provision of a limited calibration service.

PARTICIPANT:

Flinders University of South Australia
 Management (principal)
 Schwerdtfeger, P.
 Institute of Atmospheric and Marine Sciences
 Bedford Park, South Australia 5042
 AUSTRALIA

Independent Projects

00100

Solar Heat Generation**LOCATION:**

East Melbourne, Victoria

DESCRIPTION:

To provide meteorological and other data in a form suitable for the design of solar heat generating systems.

PARTICIPANT:

Commonwealth Scientific and Industrial
 Research Organization (CSIRO)
 Management (principal)
 Morse, Roger N.
 Director (Retired)
 Solar Engineering Unit
 Division of Mechanical Engineering
 P.O. Box 89
 East Melbourne, Victoria 3002
 AUSTRALIA

00102

A Study of Local Topographical Effects on the Collection of Solar Energy**LOCATION:**

Rockhampton, Queensland

DESCRIPTION:

The project sets out to investigate whether there are significant variations of energy received within a locality with a view to offering a tentative tactical statement regarding the siting of major solar energy power stations.

PARTICIPANT:

Capricornia Institute of Advanced Education
 Management (principal)
 Bugler, J. W.
 Department of Mechanical Engineering
 M.S. 76
 Rockhampton, Queensland 4700
 AUSTRALIA

00101

Solar Radiation**LOCATION:**

Bedford Park, South Australia

00103

Survey of Solar Insolation in the Sydney Area**LOCATION:**

Sydney, New South Wales

DESCRIPTION:

The aim of this project is to try to obtain an insolation map of the Sydney area, using a cheaply constructed photochemical pyranometer; if such a method proves to be efficacious then inter alia it will be useful as a cheap solarimeter.

PARTICIPANT:

New South Wales Institute of Technology
Management (principal)
Sullivan, E. P. A.
School of Physics and Materials
P.O. Box 123
Broadway, New South Wales 2007
AUSTRALIA

00104

Interpretation of Solar Radiation Data

LOCATION:

Brisbane, Queensland

DESCRIPTION:

To develop a computer program which can be used for the processing of solar radiation data for several locations in the Brisbane area. This information could be used when installing solar heating equipment to obtain most efficient use of solar energy.

PARTICIPANT:

Commonwealth Scientific and Industrial
Research Organization (CSIRO)
Management (principal)
Gibson, D. C.
Senior Research Scientist
P.O. Box 26
Highett, Victoria 3190
AUSTRALIA

00105

Solar Collector Heat Tables

LOCATION:

East Melbourne, Victoria

DESCRIPTION:

To determine the heat generated by commercially available solar collectors operating under a range of conditions in a range of Australian climates.

PARTICIPANT:

Commonwealth Scientific and Industrial
Research Organization (CSIRO)
Management (principal)
Morse, Roger N.
Director (Retired)
Solar Engineering Unit
Division of Mechanical Engineering
P.O. Box 89
East Melbourne, Victoria 3002
AUSTRALIA

00106

Solar Data Collection

LOCATION:

Kensington, New South Wales

DESCRIPTION:

Collection of solar data for Sydney and development of heat table prediction for solar systems.

PARTICIPANT:

University of New South Wales
Management (principal)
Morrison, G. L.
School of Mechanical and Industrial Engineering
P.O. Box 1
Kensington, New South Wales 2033
AUSTRALIA

00107

Solar Radiation Measurement

LOCATION:

East Melbourne, Victoria

DESCRIPTION:

Measure total and diffuse radiation on horizontal and inclined surfaces. This provides basic data for the development of correlations relating solar radiation rates on a horizontal surface to rates on surfaces at various inclinations and orientations.

PARTICIPANT:

Commonwealth Scientific and Industrial
Research Organization (CSIRO)
Management (principal)
Christie, E. A.
Division of Mechanical Engineering
P.O. Box 26
Highett, Victoria 3190
AUSTRALIA

00108

Solar Radiation Data in Brisbane

LOCATION:

Brisbane, Queensland

DESCRIPTION:

Brisbane solar radiation data has been processed with the aim of constructing a "design year" of hourly total solar radiation data.

PARTICIPANT:

University of Queensland
 Management (principal)
 Szokolay, S. V.
 Architectural Science Unit
 Department of Architecture
 St. Lucia, Brisbane
 Queensland 4067
 AUSTRALIA

00109

Compilation of Weather Data**LOCATION:**

East Melbourne, Victoria

DESCRIPTION:

To provide a library of weather data including solar radiation, ambient temperature, humidity and wind speed. These data are required when calculating the performance of solar energy systems, and are stored in a form suitable for use with solar system simulation programs. All Australian stations recording solar radiation are included except those at Macquarie Island and in the Antarctic.

PARTICIPANT:

Commonwealth Scientific and Industrial
 Research Organization (CSIRO)
 Management (principal)
 Walsh, P. J.
 Divisions of Mechanical Engineering and
 Building Research
 P.O. Box 89
 East Melbourne, Victoria 3002
 AUSTRALIA

00110

Solar Energy System Design and Analysis**LOCATION:**

East Melbourne, Victoria in southeastern
 Australia

DESCRIPTION:

To develop and use sophisticated computer based design and analysis, which make use of weather data and allow the prediction of the performance of solar energy systems and their optimization. A library of programs obtained from the U.S. is also maintained.

PARTICIPANT:

Commonwealth Scientific and Industrial
 Research Organization (CSIRO)
 Management (principal)
 Cooper, Peter I.
 Senior Research Scientist
 Solar Engineering Unit
 Division of Mechanical Engineering
 P.O. Box 26
 Highett, Victoria 3190
 AUSTRALIA

00111

Solar Energy Collector Development**LOCATION:**

Melbourne, Victoria in southeastern
 Australia

DESCRIPTION:

Investigation of potential and carry out work aimed at the development of a solar energy collector with particular emphasis in the use of glass, to hold a watching brief on general developments in the collection, conversion and application of solar energy in domestic and industrial areas with particular emphasis in the part played by the glass.

PARTICIPANT:

Pilkington ACI Operations Pty. Ltd.
 Management (principal)
 Burrell, A. C.
 470 Collins Street
 Melbourne, Victoria 3000
 AUSTRALIA

00112

Diffraction Grating Studies**LOCATION:**

Hobart, Tasmania in southern Australia

DESCRIPTION:

Aims of the project include a theoretical study of grating efficiencies and in particular the performance of crossed gratings and grids as selective solar absorbers. The work may have applications in solar energy collection.

PARTICIPANT:

University of Tasmania
 Management (principal)
 Waterworth, M. D.
 Department of Physics
 P.O. Box 252 C
 Hobart, Tasmania 7001
 AUSTRALIA

00113

Topography and Optical Properties of Chrome Blacks

LOCATION:

Broadway, New South Wales in southeastern Australia

DESCRIPTION:

To determine the connection between film topography and variation of spectral reflectance with wavelength so that both can be related to the deposition conditions of the chrome black.

PARTICIPANT:

New South Wales Institute of Technology Management (principal)
Riddiford, C. L.
School of Physics and Materials
P.O. Box 123
Broadway, New South Wales 2007
AUSTRALIA

00114

The Electrochemical Deposition of Chrome Black Selective Surfaces

LOCATION:

Broadway, New South Wales in southeastern Australia

DESCRIPTION:

To produce selective surfaces with desired properties for use as solar absorbers.

PARTICIPANT:

New South Wales Institute of Technology Management (principal)
Riddiford, C. L.
School of Physics and Materials
P.O. Box 123
Broadway, New South Wales 2007
AUSTRALIA

00115

Theory of Optical Characteristics of Chrome Black Selective Surfaces

LOCATION:

Broadway, New South Wales in southeastern Australia

DESCRIPTION:

To model the unusual optical behavior of chrome-black films on metal substances in terms of the film structure and composition. Direct use is made of results obtained in the associated experimental programs of the School.

PARTICIPANT:

New South Wales Institute of Technology Management (principal)
Smith, G. B.
School of Physics and Materials
P.O. Box 123
Broadway, New South Wales 2007
AUSTRALIA

00116

Microstructure and Optical Properties of Chrome Blacks

LOCATION:

Broadway, New South Wales in southeastern Australia

DESCRIPTION:

An experimental investigation into the influence of crystal microstructure on the solar radiation absorbing properties of chromium type selective absorbers.

PARTICIPANT:

New South Wales Institute of Technology Management (principal)
Moon, A. R.
School of Physics and Materials
P.O. Box 123
Broadway, New South Wales 2007
AUSTRALIA

00117

Solar Air Conditioning System

LOCATION:

Townsville, Queensland in eastern Australia

DESCRIPTION:

The first government building with a solar air conditioning system has been put into operation. It serves as a pilot plant for further eventual plants of this type, which would be planned by the government if this proves successful. This plant, which will be used to retain the heat for an absorption cooling system, has conserved up to 70% of the energy necessary for conventional plants. The plant should be operated in comparison to conventional cooling systems.

00118

Corrosion of Solar Flat Plate Hot Water Heaters

LOCATION:

Frewville, South Australia

DESCRIPTION:

To consider the environmental and geographical factors which influence water chemistry; to review the corrosion resistance of copper, ferritic stainless steel, galvanized steel and aluminum in supply water; To consider the first two objectives together in an attempt to categorize Australian supply water with respect to the metals mentioned; and to look at the effect of increasing water temperature on corrosivity.

PARTICIPANT:

Australian Mineral Development Laboratories
(AMDEL)
Management (principal)
Dillon, Barry
Flemington Street
Frewville, South Australia 5063
AUSTRALIA

00119

Selective Surfaces For Solar Absorbers**LOCATION:**

Port Melbourne, Victoria

DESCRIPTION:

In the production, optimization and evaluation of various selective surfaces for solar absorbers, much attention has been given to chrome black and a variety of black finishes on zinc coated iron. A plating rig has been constructed for the preparation of panels measuring 1.22 m x 0.61 m.

PARTICIPANT:

Commonwealth Scientific and Industrial
Research Organization (CSIRO)
Management (principal)
Cathro, K. J.
Division of Mineral Chemistry
Minerals Research Laboratories
P.O. Box 124
Port Melbourne, Victoria 3207
AUSTRALIA

00120

Radiation Properties of Materials**LOCATION:**

East Melbourne, Victoria in southeastern
Australia

DESCRIPTION:

To develop surface coatings for both absorbing surfaces and transmitting covers. A treatment plant for producing low reflectance covers is planned.

PARTICIPANT:

Commonwealth Scientific and Industrial
Research Organization (CSIRO)
Management (principal)
Christie, E. A.
Division of Mechanical Engineering
P.O. Box 26
Highett, Victoria 3190
AUSTRALIA

00121

Improved Flat Plate Solar Collector**DESCRIPTION:**

Aims: Commercial development of a new and improved solar collector with construction in aluminum. Broad Aspects: Low grade thermal energy production and usage for domestic and industrial hot water, swimming pool heating, and powering of domestic and commercial air conditioning. Nature of Project: Laboratory and pilot plant. Theoretical and experimental work on the optical properties of mixtures of metal particles in dielectrics. Theoretical and experimental studies of the optical properties of geometric structures such as grids with typical dimensions in the solar wavelengths. Development of new surfaces using vacuum coating techniques in particular sputtering, basically for evacuated collectors. Experimental studies of available selective surfaces such as chrome black to produce theoretical models to explain their properties.

PARTICIPANT:

Alcoa of Australia Ltd.
Management (principal)
Jackson, Graham B.
535 Bourke Street
Melbourne, Victoria
AUSTRALIA

00122

Solar Heating Panels**LOCATION:**

Melbourne, Victoria

DESCRIPTION:

The aim is to develop plastic solar heating panels which have a high cost efficiency factor.

PARTICIPANT:

ICI Australia Ltd.
Management (principal)
Laven, A.
ICI House
1 Nicholson Street
Melbourne, Victoria 3000
AUSTRALIA

00123

Solar Heating of Water

LOCATION:

Broadway, New South Wales in southeastern Australia

DESCRIPTION:

The object of this work is the development of a low cost solar heater based on an absorber made of black polyethylene tubing.

PARTICIPANT:

New South Wales Institute of Technology
Management (principal)
Sabine, T. M.
School of Physics and Materials
P.O. Box 123
Broadway, New South Wales 2007
AUSTRALIA

00124

Solar Energy For The Layman

DESCRIPTION:

To provide the public with information relating to the use of solar energy and the construction of solar energy devices. To construct and evaluate a series of flat bed absorbers which could be made by people with little or no technical expertise.

PARTICIPANT:

Mt. Gravatt College of Advanced Education
Management (principal)
Swindell, Richard F.
Department of Science
P.O. Box 82
Mt. Gravatt, Queensland 4122
AUSTRALIA

00125

Domestic Application of Solar Energy

DESCRIPTION:

To monitor advances in the design and technology and to provide and evaluate data regarding the feasibility of large scale manufacturing and marketing of solar energy collectors. The project is mainly a literature survey and watching brief.

PARTICIPANT:

Malleys Ltd.
Management (principal)
Stanley, S.

00126

Collector Technology

LOCATION:

Highett, Victoria

DESCRIPTION:

Project designed to develop low-cost, cost effective solar collectors capable of being retrofitted onto standard roofs and to design performance testing procedures.

PARTICIPANT:

Commonwealth Scientific and Industrial
Research Organization (CSIRO)
Management (principal)
Symons, J. G.
Research Scientist
Division of Mechanical Engineering
P.O. Box 26
Highett, Victoria 3190
AUSTRALIA

00128

Development of All-Glass Evacuated Collectors

LOCATION:

Sydney, New South Wales in southeastern Australia

DESCRIPTION:

Development of low cost methods of depositing selective surfaces for evacuated collectors. Studies of outgassing problems in permanently sealed evacuated collectors, and the development of economic means of achieving a twenty-year life. Accelerated lifetime testing of all-glass modules. Optical design and manifolding of all-glass evacuated collectors. Testing of all-glass collectors, particularly for high temperature operation. Use of all-glass evacuated collectors, with particular emphasis on cooling systems and the provision of industrial steam.

PARTICIPANT:

University of Sydney
Management (principal)
Window, Brian
School of Physics
Sydney, New South Wales 2006
AUSTRALIA

00129

Thermosyphon Flow in Collectors**LOCATION:**

Kensington, New South Wales in southeastern Australia

DESCRIPTION:

Analysis of dynamics and thermosyphon flow in solar collectors.

PARTICIPANT:

University of New South Wales
Management (principal)
Morrison, G. L.
School of Mechanical and Industrial Engineering
P.O. Box 1
Kensington, New South Wales 2033
AUSTRALIA

00130

Collector Testing Equipment**LOCATION:**

Hihett, Victoria in southeastern Australia

DESCRIPTION:

Completed and operational for testing solar collectors up to 95 deg. C. Completed but only partly operational for testing high temperature collectors (200-300 deg. C). Near completion solar simulator using a bank of lights. Materials are tested using a spectral-radiometer to measure reflectance and transmittance properties for companies and universities.

PARTICIPANT:

Commonwealth Scientific and Industrial Research Organization (CSIRO)
Management (principal)
Proctor, David
Division of Mechanical Engineering
P.O. Box 26
Hihett, Victoria 3190
AUSTRALIA

00131

Slats and Honeycombs for High Performance Flat Plate Collectors**LOCATION:**

Melbourne, Victoria in southeastern Australia

DESCRIPTION:

Extensive theoretical and experimental work has established the validity of using honeycomb structures for convective suppression in flat plate collectors. Theoretical and experimental studies are being undertaken to define the

utility of two dimensional slat structures for the same purpose. The aim is to extend the performance level of the conventional flat plate collector to areas requiring process temperatures in excess of 100 deg. C.

PARTICIPANT:

University of Melbourne
Management (principal)
Charters, W. W. S.
Department of Mechanical Engineering
Parkville, Victoria 3052
AUSTRALIA

00132

Solar Collector Panels**DESCRIPTION:**

Research is continuing on fiberglass reinforced plastics and glass solar collector panels. Further research work has been carried out on an all plastic high efficiency panel. Other work carried out includes the development of a novel solar cooling system that allows regeneration of coolant at temperatures which can be achieved in flat plate panels.

PARTICIPANT:

Applied Research of Australia Pty. Ltd.
Management (principal)
Hastwell, P. J.

00133

Conversion of Direct Solar Energy: High Temperature Collector Systems**LOCATION:**

Bedford Park, South Australia

DESCRIPTION:

The aim is to develop solar energy collectors to operate above 100 deg. C. These collectors would have applications for solar air cooling systems, steam generation and possibly the generation of mechanical and electrical energy by using turbines or other engines.

PARTICIPANTS:

Flinders University of South Australia
Management (joint)
Blevin, N. A.
Department of Physics
Bedford Park, South Australia 5042
AUSTRALIA
Flinders University of South Australia
Management (joint)
Murray, E. L.
Department of Physics
Bedford Park, South Australia 5042
AUSTRALIA

00134

Evacuated Glass Collectors

LOCATION:

Port Melbourne, Victoria

DESCRIPTION:

In an attempt to provide process heating in the temperature range 100 to 150 deg. C an evacuated glass collector has been designed. A prototype has been constructed and is soon to be tested by the CSIRO Division of Mechanical Engineering. The collector employs a metal absorbing structure within the glass envelope. The selective surface is electrodeposited chrome black. Collectors so far tested have loss coefficients of 0.6 Watt per sq. m at a temperature of 90 deg. C. This compares with loss coefficients of 2 Watt per sq. m for double glazed flat plate collectors with selective surfaces and 6 Watt per sq. m for single glazed collectors with nonselective surfaces.

PARTICIPANT:

Commonwealth Scientific and Industrial
Research Organization (CSIRO)
Management (principal)
Cathro, K. J.
Division of Mineral Chemistry
Minerals Research Laboratories
P.O. Box 124
Port Melbourne, Victoria 3207.
AUSTRALIA

00135

High Temperature Concentrating Solar Absorber

DESCRIPTION:

The aim of the project is to develop a cylindrical concentrator and simple tracking system to produce steam. The broad aspects of the project lie in the field of energy usage for high temperature heating or ultimately in the development of systems for producing electric power and refrigeration. The project consists of a design study to determine the best configuration for the collector and tracking device followed by pilot tests and development.

PARTICIPANT:

Caulfield Institute of Technology
Management (principal)
Deutscher, K.
Department of Mechanical Engineering
900 Dandenong Road
P.O. Box 197
Caulfield East, Victoria 3145
AUSTRALIA

00136

The Use of Planar Reflectors for Increasing the Energy Yield of Flat Plate Collectors of Solar Energy

LOCATION:

St. Lucia-Brisbane, Queensland in eastern Australia

DESCRIPTION:

The aim of the project was to increase the output from flat plate solar collectors by using planar reflectors. It involved use of a mathematical model to predict the performance of the reflector-collector system which was then compared to an experimental system. Specifically the model was used to predict the annual performance of a water-heating system and thus to choose the optimum reflector-collector complex.

PARTICIPANT:

Commonwealth Scientific and Industrial
Research Organization (CSIRO)
Management (principal)
Cathro, K. J.
Division of Mineral Chemistry
Minerals Research Laboratories
P.O. Box 124
Port Melbourne, Victoria 3207
AUSTRALIA

00137

Total Energy Needs of Residences From Solar Energy

LOCATION:

Coogee, New South Wales in southeastern Australia

DESCRIPTION:

The development of technology which will enable the total energy needs of the domestic unit to be met from solar energy. The project will involve work in energy storage and conversion to electricity. Present laboratory work is on the development of an inexpensive solar concentrator and relevant literature is being monitored.

PARTICIPANT:

Australian Atomic Energy Commission (AAEC)
Management (principal)
Mayer, Ivan
45 Beach Street
Coogee, New South Wales 2034
AUSTRALIA

00138

Linear Concentrators**LOCATION:**

Kensington, New South Wales in southeastern Australia

DESCRIPTION:

The group aims to produce thermal energy at up to 200 deg. C using low concentrating solar devices. Two techniques are under study. Both look promising and are under patent application. One method uses nonimaging concentrators and the other uses a combination of refraction, reflection and total internal reflection. The latter has the potential for use with photovoltaic devices.

PARTICIPANT:

New South Wales Institute of Technology
Management (principal)
Guitronich, John E.
School of Physics and Materials
P.O. Box 123
Broadway, New South Wales 2007
AUSTRALIA

00139

Linear Refracting Concentrators**LOCATION:**

North Ryde, New South Wales

DESCRIPTION:

The aim of this project is to develop an inexpensive stationary concentrator intended for industrial use. A concentrator incorporating refracting elements has been developed to meet this requirement.

PARTICIPANT:

University of New South Wales
Management (principal)
Szulmayer, W.
School of Physics
P.O. Box 1
Kensington, New South Wales 2033
AUSTRALIA

00140

Mirrors for Concentration**LOCATION:**

St. Lucia-Brisbane, Queensland

DESCRIPTION:

To determine the best method of fabricating accurate paraboloidal mirrors for use as solar energy concentrators.

PARTICIPANT:

University of Queensland
Management (principal)
Lyons, Laurence E.
Department of Physical Chemistry
St. Lucia, Brisbane
Queensland 4067
AUSTRALIA

00141

Solar Energy Studies**LOCATION:**

Frewville, South Australia

DESCRIPTION:

The following aspects are being investigated at laboratory and pilot plant scales. 1) Accuracy of solar heating panel instrumentation. 2) Setting up of solar heating panel testing rig.

PARTICIPANT:

Australian Mineral Development Laboratories
(AMDEL)
Management (principal)
Lackey, J. A.
Flemington Street
Frewville, South Australia 5063
AUSTRALIA

00142

Domestic and Commercial Solar Water Heating**LOCATION:**

Highbett, Victoria in southeastern Australia

DESCRIPTION:

Testing of typical systems: evaluating their performance and solar contribution and determining their thermal characteristics.

PARTICIPANT:

University of Queensland
Management (principal)
Edwards, D. G.
Department of Agriculture
St. Lucia, Brisbane
Queensland 4067
AUSTRALIA

00143

Instrument to Measure Absorptivities and Emissivities of Selective Surfaces

LOCATION:

Broadway, New South Wales in southeastern Australia

DESCRIPTION:

This work aims to provide basic engineering data required for an assessment of practical solar energy collectors for high grade heat systems (using selective absorbers).

PARTICIPANT:

New South Wales Institute of Technology
Management (*principal*)
Smith, G. B.
School of Physics and Materials
P.O. Box 123
Broadway, New South Wales 2007
AUSTRALIA

00144

A Microprocessor-Controlled Data-Logger for Solar Energy Measurements

LOCATION:

Broadway, New South Wales in southeastern Australia

DESCRIPTION:

A microprocessor controlled data logger system is being developed for continuous monitoring of solar radiation levels. It measures the efficiency of various solar collector units and correlates the two sets of information; the work is being carried out in conjunction with the school's energy group. The system is designed to be inexpensive and energy efficient so that it can be used in remote areas for long periods of time.

PARTICIPANT:

New South Wales Institute of Technology
Management (*principal*)
Farrow, R. H.
School of Physics and Materials
P.O. Box 123
Broadway, New South Wales 2007
AUSTRALIA

00145

Evaluation of Flat-Plate Collectors for Heating Water

LOCATION:

Brisbane, Queensland in eastern Australia

DESCRIPTION:

A systematic analysis of flat plate collectors for the production of hot water.

University of Queensland
Management (*principal*)
Szokolay, S. V.
Architectural Science Unit
Department of Architecture
St. Lucia, Brisbane
Queensland 4067
AUSTRALIA

00146

Testing Flat Plate Collectors

LOCATION:

Brisbane, Queensland in Eastern Australia

DESCRIPTION:

A solar collector test rig has been constructed to test and certify university and commercial collectors.

PARTICIPANT:

University of Queensland
Management (*principal*)
Szokolay, S. V.
Architectural Science Unit
Department of Architecture
St. Lucia, Brisbane
Queensland 4067
AUSTRALIA

00147

Solar Collector Test Assembly Rig

LOCATION:

Western Australia

DESCRIPTION:

A modified version of thermal performance of flat plate solar collectors. Instrumentation has been installed to measure and record meteorological data in close proximity to the collectors.

PARTICIPANT:

Western Australia Institute of Technology
Management (*principal*)
Nowak, S.
School of Engineering and Surveying
Hayman Road
South Bentley, Western Australia 6102
AUSTRALIA

00148

Rating Water Heaters**LOCATION:**

Highett, Victoria in southeastern Australia

DESCRIPTION:

Testing methods of rating solar water heaters in conjunction with the Standards Association of Australia.

PARTICIPANT:

Commonwealth Scientific and Industrial
Research Organization (CSIRO)
Management (principal)
Becker, P.
P.O. Box 26
Highett, Victoria 3190
AUSTRALIA

00149

Solar Air Heaters**LOCATION:**

Highett, Victoria in southeastern Australia

DESCRIPTION:

To develop cost effective solar air heaters for use in space heating and cooling systems and industrial purposes.

PARTICIPANT:

Commonwealth Scientific and Industrial
Research Organization (CSIRO)
Management (principal)
Proctor, David
Division of Mechanical Engineering
P.O. Box 26
Highett, Victoria 3190
AUSTRALIA

00150

**Solar Water Heating in Longreach,
a Feasibility Study****LOCATION:**

Longreach, Queensland

DESCRIPTION:

To examine the economics of solar water heating in the Queensland situation and in particular Longreach. The project involved a literature survey and a report.

PARTICIPANT:

Commonwealth Scientific and Industrial
Research Organization (CSIRO)
Management (principal)

Gibson, D. C.
Senior Research Scientist
P.O. Box 26
Highett, Victoria 3190
AUSTRALIA

00154

**Improved Designs for Gas and Electric
Boosted Solar Hot Water Systems****LOCATION:**

Devon Park, South Australia

DESCRIPTION:

Beasley Industries is a firm that manufactures hot water systems. It has recently introduced new forced circulation solar water heaters that compare favorably in performance with thermosyphon systems. It has developed the first gas boosted solar hot water system commercially available in Australia.

PARTICIPANTS:

Beasley Industries Pty. Ltd.
Design (principal)
Research (principal)
Bolton Avenue
Devon Park, South Australia 5008
AUSTRALIA
Beasley Industries Pty. Ltd.
Management (principal)
Beasley, E.
Bolton Avenue
Devon Park, South Australia 5008
AUSTRALIA

00156

Industrial Development and Demonstration**LOCATION:**

East Melbourne, Victoria in southeastern Australia

DESCRIPTION:

To demonstrate commercially solar heat generating systems capable of producing process heat on a large scale.

PARTICIPANT:

Commonwealth Scientific and Industrial
Research Organization (CSIRO)
Management (principal)
Morse, Roger N.
Director (Retired)
Solar Engineering Unit
Division of Mechanical Engineering
P.O. Box 26
East Melbourne, Victoria 3002
AUSTRALIA

00157

Heat Generation

LOCATION:

East Melbourne, Victoria in southeastern Australia

DESCRIPTION:

To provide basic design information for industrial systems; to identify problem areas; to indicate future research and development directions; and to communicate results to industry.

PARTICIPANT:

Commonwealth Scientific and Industrial Research Organization (CSIRO)
Management (principal)
Cooper, Peter I.
Senior Research Scientist
Solar Engineering Unit
Division of Mechanical Engineering
P.O. Box 26
Highett, Victoria 3190
AUSTRALIA

00158

Industrial Heating

LOCATION:

Perth, Western Australia

DESCRIPTION:

To develop a solar panel module suitable for industrial uses.

PARTICIPANT:

S.W. Hart and Co. Pty. Ltd.
Management (principal)
Supply (level unknown)
Funding (level unknown)
Design (level unknown)
Riley, H. J.
Manager
Research and Development
105 Fitzgerald Street
Perth, Western Australia 6000
AUSTRALIA

00159

Technological and Economic Evaluation of Industrial Solar Heating Applications. Area 1, Meat Industries.

LOCATION:

Melbourne, Victoria in southeastern Australia

DESCRIPTION:

A hypothetical abattoir in Melbourne is being studied with the object of: 1) examining energy conservation measures; 2) determining the cost of energy consumed; and 3) determining the cost savings of partial energy replacement by solar energy.

PARTICIPANT:

Australian Mineral Development Laboratories (AMDEL)
Management (principal)
Lackey, J. A.
Flemington Street
Frewville, South Australia 5063
AUSTRALIA

00160

Solar Salt Fields Research

LOCATION:

Melbourne, Victoria

DESCRIPTION:

To increase the efficiency of solar absorption and hence the evaporation of water, and to optimize and control the ecology of the fields to increase salt yield.

PARTICIPANT:

ICI Australia Ltd.
Management (principal)
Jones, A. G.
ICI House
1 Nicholson Street
Melbourne, Victoria 3000
AUSTRALIA

00161

Solar Energy Utilization

LOCATION:

Clayton, Victoria

DESCRIPTION:

To develop an efficient and economical medium temperature solar collector system (for industrial utilization) for temperatures up to 150 deg. C.

PARTICIPANT:

Monash University
Management (principal)
Gani, R.
Department of Mechanical Engineering
Wellington Road
Clayton, Victoria 3168
AUSTRALIA

00165

Energy Conversion and Alternative Energy for Industry**LOCATION:**

St. Lucia-Brisbane in Queensland Australia

DESCRIPTION:

With the object of containing energy costs, a study of low grade solar heat has been initiated for a malting factory.

PARTICIPANT:

University of Queensland
Management (principal)
Sheridan, N. R.
Department of Mechanical Engineering
St. Lucia, Brisbane
Queensland 4067
AUSTRALIA

00166

Thermal Energy Storage**LOCATION:**

Highett, Victoria in southeastern Australia

DESCRIPTION:

A method for determining the optimum thermal storage capacity has been developed. This method will be used to determine the feasibility of seasonal storage, and research directions leading to methods for thermal storage at temperatures above 100 deg. C.

PARTICIPANT:

Commonwealth Scientific and Industrial
Research Organization (CSIRO)
Management (principal)
Kovarik, M.
Principal Research Scientist
Solar Engineering Unit
Division of Mechanical Engineering
P.O. Box 26
Highett, Victoria 3190
AUSTRALIA

00167

DESCRIPTION:

The use of solar energy for domestic air conditioning in mining towns.

PARTICIPANT:

Comalco Ltd.
Management (principal)
Leigh, J.

00168

Heat-Transfer Problems in Design of a Solar Refrigerator**LOCATION:**

Broadway, New South Wales in southeastern Australia

DESCRIPTION:

To solve certain heat-transfer problems in the design of a refrigerator run on solar power.

PARTICIPANT:

New South Wales Institute of Technology
Management (principal)
Sabine, T. M.
School of Physics and Materials
P.O. Box 123
Broadway, New South Wales 2007
AUSTRALIA

00169

Modeling of a Solar-Operated Absorption Air Conditioner with Refrigerant Storage**LOCATION:**

St. Lucia-Brisbane in Queensland Australia

DESCRIPTION:

Dynamic model of a solar air conditioning system has been developed.

PARTICIPANT:

University of Queensland
Management (principal)
Sheridan, N. R.
Department of Mechanical Engineering
St. Lucia, Brisbane
Queensland 4067
AUSTRALIA

00170

Solar Energy, Thermal Applications**DESCRIPTION:**

Eventual development of equipment utilizing solar energy for water heating, space heating and refrigeration.

PARTICIPANT:

Email Limited
Management (principal)
Supply (level unknown)
Design (level unknown)
Research (level unknown)
Orlay, J.
Central R & D Department

00171

**Solar Energy Air Conditioning Unit Using
a Lithium Bromide Absorption Cooler.**

LOCATION:

South Bentley, Western Australia

DESCRIPTION:

Demonstrating solar air conditioning unit under everyday conditions for purposes of making public more aware of solar technology.

PARTICIPANT:

Western Australia Institute of Technology
Management (principal)
Nash, A. H.
Dean
School of Engineering & Surveying
Haymen Road
South Bentley, Western Australia
AUSTRALIA

00172

Solar Boosted Heat Pumps

LOCATION:

Melbourne, Victoria in southeastern Australia

DESCRIPTION:

A theoretical computational and design optimization has been undertaken and one particular type of solar boosted heat pump has been patented. An ongoing program of work in the interactive areas of heat pumps and solar technology is being carried on both at the theoretical and the experimental levels.

PARTICIPANT:

University of Melbourne
Management (principal)
Charters, W. W. S.
Department of Mechanical Engineering
Parkville, Victoria 3052
AUSTRALIA

00173

Air Cooled Absorption Cycle Solar Systems

LOCATION:

Melbourne, Victoria in southeastern Australia

DESCRIPTION:

A lithium bromide water absorption cycle system can be operated from a solar heated source and use air cooling in place of the conventional cooling tower concept. The aim of this project is to develop a system capable of being solar operated in arid regions or regions where the water quality is suspect.

PARTICIPANT:

University of Melbourne
Management (principal)
Charters, W. W. S.
Department of Mechanical Engineering
Parkville, Victoria 3052
AUSTRALIA

00174

**Integrated Roof Structure Collectors.
Architectural and Mechanical Aspects**

LOCATION:

Parkville, Victoria in southeastern Australia

DESCRIPTION:

Design and development studies on integrated roof structure collectors capable of accommodating water heater elements, air heater elements, or heat pump elements have resulted in a modular design based on conventional metal roofing practices. Further studies are being undertaken to evaluate problems in manifolding and assembly of such integrated structures.

PARTICIPANT:

University of Melbourne
Management (principal)
Charters, W. W. S.
Department of Mechanical Engineering
Parkville, Victoria 3052
AUSTRALIA

00179

Solar Air Conditioning

LOCATION:

Townsville, Queensland in eastern Australia

DESCRIPTION:

Construction of a solar air conditioning office building in Townsville, Queensland, to test the design methods, component performance and the economics of solar air conditioning. The building will have a conventional water chiller and extensive monitoring equipment to allow for long term comparisons.

PARTICIPANTS:

Commonwealth Scientific and Industrial
Research Organization (CSIRO)
Management (principal)
Becker, P.
Solar Engineering Unit
Division of Mechanical Engineering
P.O. Box 26
Highett, Victoria 3190
AUSTRALIA

00181

Heat Pumps*DESCRIPTION:*

Investigation of the use of heat pumps for solar energy harvesting, particularly economic feasibility, and design methods.

PARTICIPANT:

Commonwealth Scientific and Industrial
Research Organization (CSIRO)
Management (*principal*)
Becker, P.
Solar Engineering Unit
Division of Mechanical Engineering
P.O. Box 26
Highett, Victoria 3190
AUSTRALIA

00182

Thin Film Cadmium-Sulphide Solar Cells*LOCATION:*

Queensland, in eastern Australia

DESCRIPTION:

To fabricate, using vacuum deposition techniques, thin film solar cells for the direct conversion of solar to electrical energy. The project necessitated the construction of a multi-stage high vacuum coating plant with instrumentation to be used in the laboratory for the development of the solar cells.

PARTICIPANT:

Queensland Institute of Technology
Management (*principal*)
Davies, J. A.
Department of Physics
Gardens Point
Brisbane, Queensland 4000
AUSTRALIA

00183

**Solar Energy Conversion at Semiconductor/
Electrolyte Interfaces***LOCATION:*

Adelaide, South Australia

DESCRIPTION:

Research into surface reactions occurring at semiconductor/electrolyte interfaces during irradiation with photons in the solar energy range and the possible application of zinc oxide as a semiconductor in photovoltaic and photoelectrolytic cells.

PARTICIPANT:

Commonwealth Scientific and Industrial
Research Organization (CSIRO)
Supply (*principal*)
Nobbs, J. M.
Division of Materials Science
Adelaide Laboratory
Adelaide, South Australia
AUSTRALIA

00184

**An Investigation of Thin-Film Cadmium-
Sulphide Photovoltaic Solar Cells***LOCATION:*

Broadway, New South Wales in southeastern
Australia

DESCRIPTION:

Using electrodeposited CdS films as an alternative to vacuum-deposited films in photovoltaic cells in expectation of cost reduction in the manufacturing process.

PARTICIPANT:

New South Wales Institute of Technology
Management (*principal*)
Gammon, R. B.
School of Physics and Materials
P.O. Box 123
Broadway, New South Wales 2007
AUSTRALIA

00185

Thin Film Photovoltaic Solar Cells*LOCATION:*

Port Melbourne, Victoria in southeastern
Australia

DESCRIPTION:

The production and characterization of thin film photovoltaic cells formed by vacuum evaporation with control of the chemistry and measurement, and control of the electronic parameters to increase the efficiency and stability of photovoltaic cells for energy production.

PARTICIPANT:

Commonwealth Scientific and Industrial
Research Organization (CSIRO)
Management (*principal*)
Scaife, D. E.
Minerals Research Laboratories
Division of Mineral Chemistry
P.O. Box 124
Port Melbourne, Victoria 3207
AUSTRALIA

00186

Solar Cells From Organic Materials

LOCATION:

Kensington, New South Wales in southeastern Australia

DESCRIPTION:

Using the sub-threshold generation of defects in solids, it may be possible to make low cost solar cells with polymers which have deep p-n junctions.

PARTICIPANT:

University of New South Wales
Management (principal)
Hora, Heinrich
Department of Theoretical Physics
P.O. Box 1
Kensington, New South Wales 2033
AUSTRALIA

00188

Interface Electronic Structure of Schottky Barriers and Heterojunctions

LOCATION:

New South Wales in southeastern Australia

DESCRIPTION:

The project is a theoretical first principles microscopic calculation using Green's function techniques. The aim is to relate the nature of interface involving metals and tetrahedrally coordinated III-V compound semiconductors to the local electronic structure at the interface. The project has applications for the design of solid state devices and solar cells.

PARTICIPANT:

University of New South Wales
Management (principal)
Lowy, D. N.
Department of Theoretical Physics
P.O. Box 1
Kensington, New South Wales 2033
AUSTRALIA

00189

An Investigation of Photoelectrochemical Effects

LOCATION:

Nedlands, Western Australia

DESCRIPTION:

The project involves experimental studies of certain cells and the development of relevant

theoretical expressions for photovoltage, photocurrent, and power conversion efficiency.

PARTICIPANT:

University of Western Australia
Management (principal)
Quickenden, T. I.
Department of Physical and Inorganic Chemistry
Nedlands, Western Australia 6009
AUSTRALIA

00190

Surface Photovoltage of MOS Structures

LOCATION:

Queensland, in southeastern Australia

DESCRIPTION:

Production of a computer model of the MOS solar cells for evaluation of a cell efficiency and the influence of cell parameters on cell performance. Fabricating MOS solar cells in the departmental semiconductor laboratory with the aim of establishing a fabrication process and to confirm the results arrived at in the computer model.

PARTICIPANT:

University of Queensland
Management (principal)
Yeow, Y. T.
Department of Electrical Engineering
St. Lucia, Brisbane
Queensland 4067
AUSTRALIA

00191

Photovoltaic Conversion with Semiconductor Elements and Compounds

LOCATION:

St. Lucia-Brisbane in Queensland

DESCRIPTION:

Fabrication of p-n junction silicon cells and polycrystalline cadmium sulphide cells.

PARTICIPANT:

University of Queensland
Management (principal)
Gunn, M. W.
Department of Electrical Engineering
Department of Mechanical Engineering
St. Lucia, Brisbane
Queensland 4067
AUSTRALIA

00192

The MIS and MISIM Solar Cells**LOCATION:**

Kensington, New South Wales in southeastern Australia

DESCRIPTION:

The insertion of a very thin insulating layer (20Å) between the metal and semi-conductor of a Schottky solar cell can dramatically improve its open circuit voltage. The resulting metal-insulator-semi-conductor (MIS) structure is shown to be electronically equivalent to a p-n junction device, provided that minority carrier flow is dominant. The MISIM solar cells structure is equivalent to the high efficiency n + pp + junction cell and is potentially cheap to fabricate. Large open-circuit photovoltages have been obtained on single crystal devices, and cells of 10% efficiency have been made. Recent work on large-grain polycrystalline substrates has shown that the MIS and MISIM structure is suited to fabricating solar cells on such material. Open circuit voltages of better than 510 mV have been obtained at a current density of 15 mA/cm sq. It has been found that grain boundary recombination is not a problem with the MIS structure on polycrystalline material.

PARTICIPANT:

University of New South Wales
Management (principal)
Davies, Lou W.
School of Electrical Engineering
P.O. Box 1
Kensington, New South Wales 2033
AUSTRALIA

00193

Direct Conversion of Solar to Electrical Energy**LOCATION:**

St. Lucia-Brisbane in Queensland

DESCRIPTION:

To improve the energy conversion efficiency of photovoltaic and photoelectrochemical cells using electrodeposited films of semiconductors. Gallium arsenide, cadmium sulphide, and cadmium telluride films have been made by electrodeposition. To increase the efficiency of the initial photogeneration of charge carriers in photovoltaic cells incorporating these films of organic material.

PARTICIPANT:

University of Queensland
Management (principal)
Lyons, Laurence E.
Department of Physical Chemistry
St. Lucia, Brisbane
Queensland 4067
AUSTRALIA

00194

Prospects for Solar-electrical Generation in Victoria**LOCATION:**

Clayton, Victoria in southeastern Australia

DESCRIPTION:

To assess technical developments in electrical generation from renewable sources leading to laboratory research in current years.

PARTICIPANT:

Monash University
Management (principal)
Boswick, W. J.
Department of Electrical Engineering
Wellington Road
Clayton, Victoria 3168
AUSTRALIA

00195

Solid State Materials, Devices, and Circuits: Solar Cells**DESCRIPTION:**

The investigation of low cost semi-conductor hetero-junction solar cells and their use with concentrators. Photovoltaic power generation for remotely located telecommunications equipment.

PARTICIPANT:

Australian Telecommunications Commission
(TELECOM)
Management (principal)
Teede, N.
Research Laboratories

00196

Solar Concentrators for Photovoltaics and Photochemical Conversion**LOCATION:**

Queensland in eastern Australia

DESCRIPTION:

To produce very low cost collectors with concentration ratios between 10 and 100.

PARTICIPANT:

Queensland Institute of Technology
Management (principal)
Edmonds, I. R.
Department of Physics
Gardens Point
Brisbane, Queensland 4000
AUSTRALIA

00197

Evaluation of Solar Power Module Packaging

DESCRIPTION:

Evaluate the environmental resistance, under simulated laboratory conditions, of solar cell arrays intended for possible use on the Alice Springs Tennant Creek Microwave Carrier Systems. Includes tests of the packaging to see if it can withstand high/low temperatures, high humidity and condensation, solar radiation, dust abrasion, etc.

PARTICIPANTS:

Australian Telecommunications Commission
(TELECOM)
Management (joint)
Chisholm, B.
Physical Sciences Branch
Research Laboratories
Australian Telecommunications Commission
(TELECOM)
Management (joint)
Mitchell, G.
Physical Sciences Branch
Research Laboratories

00198

Performance Estimates of Concentrating Solar Collectors

LOCATION:

St. Lucia-Brisbane in Queensland

DESCRIPTION:

Predict performance of a photovoltaic energy system through a computer simulation of a concentrating solar collector system, using array tracing techniques. The proposed use of the device is for an autonomous energy system.

PARTICIPANT:

University of Queensland
Management (principal)

Sheridan, N. R.
Department of Mechanical Engineering
St. Lucia, Brisbane
Queensland 4067
AUSTRALIA

00199

Solar Energy Conversion

LOCATION:

Kensington, New South Wales in southeastern Australia

DESCRIPTION:

The aims are to convert solar energy to electricity plus hydrogen and heat by an integrated method based on large area sheets of semi-conductor polychrystalline film immersed in a shallow pond of electrolyte and exposed to sunlight. Laboratory research and pilot plant tests are in progress. The present pilot plant has low efficiency, low cost and durability. Research on more efficient systems is in progress. Emphasis at present is on producing an economically competitive system which will provide energy for local consumption.

PARTICIPANT:

University of New South Wales
Management (principal)
Haneman, D.
School of Physics
P O Box 1
Kensington, New South Wales 2033
AUSTRALIA

00400

Conversion and Storage of Solar Energy

LOCATION:

Hihett, Victoria in southeastern Australia

DESCRIPTION:

The aim is to develop means of conversion and storage of solar energy through photochemical processes, including the non-biological production of high energy fuel. The present approach is endeavoring to synthesize combustible fuels with reactions that are driven by sunlight.

PARTICIPANT:

Commonwealth Scientific and Industrial
Research Organization (CSIRO)
Management (principal)
Sasse, W. H. F.
Division of Applied Organic Chemistry
P.O. Box 26
Hihett, Victoria 3190
AUSTRALIA

00401

Solar Energy Conversion (by Photochemical Processes)**LOCATION:**

Coogee, New South Wales in southeastern Australia

DESCRIPTION:

To improve the efficiency of conversion of solar energy to hydrogen fuel by the photoelectrolytic decomposition of water.

PARTICIPANT:

Australian Atomic Energy Commission (AAEC)
Management (principal)
Bradhurst, D. H.
45 Beach Street
Coogee, New South Wales 2034
AUSTRALIA

00402

Oxide Anodes for Photoelectrochemical Production of Hydrogen**LOCATION:**

Port Melbourne, Victoria in southeastern Australia

DESCRIPTION:

This project involves laboratory research to determine general principles in the design of semiconducting oxide materials suitable for use as anodes in the photoelectrochemical production of hydrogen from water.

PARTICIPANT:

Commonwealth Scientific and Industrial Research Organization (CSIRO)
Management (principal)
Scaife, D. E.
Minerals Research Laboratories
Division of Mineral Chemistry
P.O. Box 124
Port Melbourne, Victoria 3207
AUSTRALIA

00403

Photoelectrochemical Methods of Energy Conversion**LOCATION:**

Port Melbourne, Victoria in southeastern Australia

DESCRIPTION:

This project involves laboratory research to determine the detailed electrochemical

parameters of oxide and chalcogenide materials to be used as electrodes in photoelectrochemical cells for the production of hydrogen or power from solar radiation.

PARTICIPANT:

Commonwealth Scientific and Industrial Research Organization (CSIRO)
Management (principal)
Linge, H. G.
Division of Mineral Chemistry
Minerals Research Laboratories
P.O. Box 124
Port Melbourne, Victoria 3207
AUSTRALIA

00404

Electron Transfer Reactions of Photochemically Excited Metal Complexes and the Catalytic Production of Hydrogen from Water**LOCATION:**

Adelaide, South Australia

DESCRIPTION:

Production of the hydrogen fuels using sunlight and metal complexes to effect the photochemical dissociation of the hydrogen and oxygen of water.

PARTICIPANT:

University of Adelaide
Management (principal)
Laurence, G. S.
Department of Physical and Inorganic Chemistry
Adelaide, South Australia 5001
AUSTRALIA

00405

Photosynthetic Membranes**LOCATION:**

Melbourne, Victoria in southeastern Australia

DESCRIPTION:

A laboratory research program to study the energetics of the photosynthesis process in natural chloroplast membranes and in reconstituted systems has been initiated. Specifically the mobility of the lipid components of chloroplast membranes and the interactions of the lipids and proteins of the photosystems are being studied by ¹³C nuclear magnetic resonance spectroscopy. Reconstitution of a "Synthetic" membrane with similar properties to the natural system are proposed as an energy production source. Such "synthetic leaves" may be useful in the production of fuels e.g., hydrogen or ethanol by photosynthesis.

PARTICIPANT:

Commonwealth Scientific and Industrial
Research Organization (CSIRO)
Management (principal)
Johns, S. R.
Division of Applied Organic Chemistry
P.O. Box 26
Highett, Victoria 3190
AUSTRALIA

00406

**Photoconducting Polymers in Solar Energy
and Imaging Process**

LOCATION:

Kensington, New South Wales in southeastern
Australia

DESCRIPTION:

The aims of the project were to develop novel photoconducting polymeric systems for such polymers in the areas of imaging, photocopying and solar energy. The project has involved detailed laboratory research, pilot plant work and a commercial demonstration to attain the first two objectives. The predominant aims now are to extend the work to solar energy applications, in particular the development of a photovoltaic device for direct energy conversion. Such a discovery would have important economic and strategic implications.

PARTICIPANT:

University of New South Wales
Management (principal)
Garnett, J. L.
School of Chemistry
P.O. Box 1
Kensington, New South Wales 2033
AUSTRALIA

00407

Production of Hydrogen and Oxygen

LOCATION:

Bedford Park, South Australia

DESCRIPTION:

Photoelectrochemical studies of hydrogen and oxygen production.

PARTICIPANT:

Flinders University of South Australia
Management (principal)
Bockris, John O'M.
School of Physical Sciences
Bedford Park, South Australia 5042
AUSTRALIA

00408

Electricity Production

LOCATION:

Bedford Park, South Australia

DESCRIPTION:

Photoelectrochemical studies of electricity.

PARTICIPANT:

Flinders University of South Australia
Management (principal)
Bockris, John O'M.
School of Physical Sciences
Bedford Park, South Australia 5042
AUSTRALIA

00409

Production of Hydrogen

LOCATION:

Bedford Park, South Australia

DESCRIPTION:

Production of hydrogen at high temperatures using solar power.

PARTICIPANT:

Flinders University of South Australia
Management (principal)
Bockris, John O'M.
School of Physical Sciences
Bedford Park, South Australia 5042
AUSTRALIA

00410

Modeling Solar Energy

LOCATION:

Bedford Park, South Australia

DESCRIPTION:

Theoretical analysis of solar energy scenarios.

PARTICIPANT:

Flinders University of South Australia
Management (principal)
Bockris, John O'M.
School of Physical Sciences
Bedford Park, South Australia 5042
AUSTRALIA

00411

**Solid State Transportation-Applications in
the Field of Energy Conservation and
Storage**

LOCATION:

Kensington, New South Wales in southeastern
Australia

DESCRIPTION:

Thermoelectric energy conversion remains a possible means of utilizing solar energy in special locations. Basic work on heat conduction in semi-conductor alloys may lead to improvements in the emission efficiency. Also, experience is being gained on the preparation of semi-conductor alloys and their incorporation in a solar thermoelectric generator. Crystal growth studies on two-phase materials may lead to structures having selective surfaces for the absorption of solar radiation.

PARTICIPANTS:

University of New South Wales
Management (joint)
Harris, L. B.
Department of Applied Physics
School of Physics
P.O. Box 1
Kensington, New South Wales 2033
AUSTRALIA

University of New South Wales
Management (joint)
Goldsmid, H. J.
Department of Applied Physics
School of Physics
P.O. Box 1
Kensington, New South Wales 2033
AUSTRALIA

00412

**The Solar-Powered Generation of
Electricity**

LOCATION:

South Bentley, Western Australia

DESCRIPTION:

The project aims to identify those areas of energy usage where solar thermal processes may be usefully employed. The first phase, that of a literature search, has been completed. A pilot plant has been designed and awaits funds to allow its implementation.

PARTICIPANT:

Western Australia Institute of Technology
Management (principal)
Marshall, Trevor

Department of Electrical Engineering
Hayman Road
South Bentley, Western Australia 6102
AUSTRALIA

00413

**Magnetic Materials for Use in Solar Energy
Applications**

LOCATION:

Nedlands, Western Australia

DESCRIPTION:

The conversion of thermal energy into "magnetic forces" may have applications for guidance systems, for example: for solar lens systems, for power production from ocean thermal gradients and for conversion of solar energy via a "magnetic dynamo". The aims of this project are to examine and develop suitable materials and to consider the feasibility and optimization of various systems.

PARTICIPANT:

University of Western Australia
Management (principal)
Anderson, R. A.
Department of Physics
Nedlands, Western Australia 6009
AUSTRALIA

00414

**The Possible Use of Atmospheric Vortices
in Solar Power Generation**

LOCATION:

Nedlands, Western Australia

DESCRIPTION:

The diffuse nature of solar energy makes it difficult to achieve concentration of that energy economically. Under certain conditions the energy is concentrated by natural processes. Atmospheric vortices, especially tornadoes and cyclones are one example. The aim is to see whether the factors responsible for natural concentration could be harnessed, i.e. used in a controlled way. The project involves laboratory research.

PARTICIPANT:

University of Western Australia
Management (principal)
Maslen, E. N.
Department of Physics
Nedlands, Western Australia 6009
AUSTRALIA

00415

A Solar Power Plant for Remote Rural Consumers

LOCATION:

St. Lucia-Brisbane in Queensland

DESCRIPTION:

To develop a solar-powered Rankine-Cycle turbo-alternator to supply the electricity requirements of an isolated rural dwelling. Hot water requirements will also be supplied using solar plant.

PARTICIPANT:

University of Queensland
Management (principal)
Darveniza, M.
Department of Electrical Engineering
St. Lucia, Brisbane
Queensland 4067
AUSTRALIA

00416

Solar Energy Conversion (by Thermal Methods)

LOCATION:

Canberra, Australian Capital Territory.

DESCRIPTION:

There are four main aspects to this project: direct radiation monitoring, mirrors and mirror steering, dissociation and transfer experiments, and storage of dissociation products in underground aquifers. The system under investigation is designed for the production of power from solar energy. Solar energy heats reaction vessels at the foci of paraboloidal mirrors. The heat causes ammonia to dissociate while under pressure and in the presence of catalysts into hydrogen and nitrogen. The products can be transported at ordinary temperatures to a storage area and recombined in a central plant to release energy. Design studies are assessing the technical and economic viability of the complete system. The storage of hydrogen in sedimentary formations is a novel aspect of this energy system that would also apply to other energy conversion schemes.

PARTICIPANT:

Systems International
Management (principal)
64-66 Wollongong Street
Fyshwick,
Australian Capital Territory
AUSTRALIA

00417

Thermal Electric Conversion

LOCATION:

St. Lucia-Brisbane in Queensland

DESCRIPTION:

To operate and evaluate a solar thermal electric (total energy) system coupled to a small building.

PARTICIPANT:

University of Queensland
Management (principal)
Lyons, Laurence E.
Department of Physical Chemistry
St. Lucia, Brisbane
Queensland 4067
AUSTRALIA

00418

Artificial Photosynthesis

LOCATION:

Bedford Park, South Australia

DESCRIPTION:

Aims - to achieve artificial photosynthesis of energy rich fuels such as hydrogen methanol using artificial membranes in the form of lipid vesicles. Aspects - the conversion of solar energy to chemical energy. Nature - Laboratory studies on light enhanced charge transfer across a vesicle membrane.

PARTICIPANT:

Flinders University of South Australia
Management (principal)
Matthews, D.
School of Physical Sciences
Bedford Park, South Australia 5042
AUSTRALIA

00419

Energy Conversion in Photosynthesis

LOCATION:

Bedford Park, South Australia

DESCRIPTION:

The aim is to understand the mechanism of photosynthesis. It involves a laboratory study using chloroplasts from green leaves. The biological system studied may possibly be adapted to produce hydrogen gas directly from light.

PARTICIPANT:

Flinders University of South Australia
 Management (principal)
 Hope, A. B.
 School of Biological Sciences and Institute for
 Energy Studies
 Bedford Park, South Australia 5042
 AUSTRALIA

00420

Anaerobic Digestion**LOCATION:**

Port Melbourne, Victoria in southeastern
 Australia

DESCRIPTION:

The aim of the project is to apply chemical engineering to the bioconversion of organic material to produce fuel. Laboratory scale tests are being carried out.

PARTICIPANT:

Commonwealth Scientific and Industrial
 Research Organization (CSIRO)
 Management (principal)
 Whitehead, A. B.
 Minerals Research Laboratories
 Division of Mineral Chemistry
 P.O. Box 26
 Highett, Victoria 3190
 AUSTRALIA

00421

Biosynthetic Technology**LOCATION:**

Melbourne, Victoria in southeastern Australia

DESCRIPTION:

The aim of the project is to study the biosynthetic production of fuels and industrial organic chemicals, in particular those derived from dwindling oil reserves.

PARTICIPANT:

Commonwealth Scientific and Industrial
 Research Organization (CSIRO)
 Management (principal)
 Curtain, Cyril C.
 Division of Chemical Technology
 Melbourne, Victoria
 AUSTRALIA

00422

LOCATION:

Sydney, New South Wales in southeastern
 Australia

DESCRIPTION:

To monitor Australian solar energy activities.

PARTICIPANT:

CSR Limited (Research Laboratories)
 Management (principal)
 Vickers, I.
 1 O'Connell Street
 Sydney, New South Wales 2000
 AUSTRALIA

00423

Microbial Degradation of Cellulose**LOCATION:**

Kensington, New South Wales in southeastern
 Australia

DESCRIPTION:

The aim of the project is to utilize cellulosic agricultural waste materials to produce ethanol. Bacterial, fungal and enzyme systems are being investigated for their efficiency to degrade natural and preconditioned cellulosic materials to glucose.

PARTICIPANTS:

University of New South Wales
 Management (joint)
 Dunn, N. W.
 School of Biological Technology
 P.O. Box 1
 Kensington, New South Wales 2033
 AUSTRALIA

University of New South Wales
 Management (joint)

Gray, P. P.
 School of Biological Technology
 P.O. Box 1
 Kensington, New South Wales 2033
 AUSTRALIA

00424

**Alcohol Production from Carbohydrates-
Computer Optimization Studies****LOCATION:**

Kensington, New South Wales in southeastern
 Australia

DESCRIPTION:

The project involves the use of computer control and optimization to increase the production of fermentation alcohol from carbohydrate materials.

PARTICIPANT:

University of New South Wales
Management (principal)
Rogers, Peter L.
School of Biological Technology
P.O. Box 1
Kensington, New South Wales 2033
AUSTRALIA

00425

Pyrolysis of Sucrose Polysaccharides and other Carbohydrates

LOCATION:

Townsville, Queensland in eastern Australia.

DESCRIPTION:

Information exchange on bioconversion with University of Montana.

PARTICIPANT:

James Cook University of North Queensland
Management (principal)
Richards, G. N.
Department of Chemistry and Biochemistry
Townsville, Queensland 4811
AUSTRALIA

00426

Cassava as Harvester of Solar Energy for Use as Feedstock in Fuel Alcohol Production

LOCATION:

St. Lucia-Brisbane in Queensland

DESCRIPTION:

The major research efforts in this area involve detailed studies of the mineral nutrition of cassava. Work on the growth and the development of the crop under field conditions at a series of sites with different environmental characteristics is proceeding. With the results an economic analysis of production factors can be carried out.

PARTICIPANTS:

University of Queensland
Management (joint)
Evenson, J. P.
Department of Agriculture
St. Lucia, Brisbane
Queensland 4067
AUSTRALIA

University of Queensland
Management (joint)
Edwards, D. G.
Department of Agriculture
St. Lucia, Brisbane
Queensland 4067
AUSTRALIA

University of Queensland
Management (joint)
Asher, C. J.
Department of Agriculture
St. Lucia, Brisbane
Queensland 4067
AUSTRALIA

00427

Studies of Energy Production Methods From By Products of the Australian Forest-Based Industries

LOCATION:

Hihett, Victoria in southeastern Australia

DESCRIPTION:

The aim of the project is to develop new techniques and equipment to better utilize and/or upgrade the energy potential of solid residues from the timber milling process.

PARTICIPANT:

Commonwealth Scientific and Industrial
Research Organization (CSIRO)
Management (principal)
Page, M. W.
Division of Building Research
P.O. Box 56
Highett, Victoria 3190
AUSTRALIA

00428

Assessment of the Availability of Sawmill Residues and Studies of its Utilization as a Simple Fuel

LOCATION:

Hihett, Victoria in southeastern Australia

DESCRIPTION:

The aim of the project is to obtain basic information on the availability of sawmill residues nationally and for specific regions; investigate geographic and economic situations where such residues may compete as a simple fuel.

PARTICIPANT:

Commonwealth Scientific and Industrial
Research Organization (CSIRO)
Management (principal)
Page, M. W.
Division of Building Research
P.O. Box 56
Highett, Victoria 3190
AUSTRALIA

00429

**Conversion of Solid Fruit and Vegetable
Processing Wastes to Methane by
Anaerobic Digestion**

LOCATION:

North Ryde, New South Wales in southeastern
Australia

DESCRIPTION:

Laboratory scale trials have demonstrated the technical feasibility of converting solid fruit and vegetable wastes into methane by anaerobic digestion. Pilot-scale trials are now being carried out to assess the industrial potential of the process as a means of disposing of the large quantities of highly polluting organic solid wastes generated by food processing operations while at the same time producing commercially usable quantities of methane fuel.

PARTICIPANT:

Commonwealth Scientific and Industrial
Research Organization. (CSIRO)
Management (principal)
Lane, A. G.
Division of Food Research
Delhi Road
North Ryde, New South Wales 2113
AUSTRALIA

00430

**A Feasibility Study of the Production of
Ethanol from Sugar Cane**

LOCATION:

Queensland, in eastern Australia

DESCRIPTION:

To report on the technical and economic feasibility of the production of ethanol in Queensland utilizing sugar cane as the feedstock.

PARTICIPANT:

State of Queensland
Management (principal)
Kelly, F. H. C.
Department of Commercial and Industrial
Development
288 Edwards Street
Brisbane, Queensland
AUSTRALIA

00431

"Cassava"**LOCATION:**

Sydney, New South Wales in southeastern
Australia

DESCRIPTION:

The aim of this project is to assess the potential of cassava as a source of power alcohol. Field tests are in progress.

PARTICIPANT:

CSR Limited (Research Laboratories)
Management (principal)
Black, J. W.
1 O'Connell Street
Sydney, New South Wales 2000
AUSTRALIA

00432

Photosynthetic Production of Liquid Fuel**LOCATION:**

Melbourne, Victoria in southeastern Australia

DESCRIPTION:

A number of systems are being examined with a view to producing liquid fuels from plant material. They include: crops that contain high proportions of carbohydrates or lipids; the use of algal ponds to consume waste carbon dioxide from fossil fuel power stations; the use of algae that grows in saline water.

PARTICIPANT:

Commonwealth Scientific and Industrial
Research Organization (CSIRO)
Management (principal)
Weiss, D. E.
Division of Chemical Technology
Melbourne, Victoria
AUSTRALIA

00433

Solar Energy Impact on Electricity Supply Grid

LOCATION:

Townsville, Queensland in southeastern Australia

DESCRIPTION:

This study is aimed at investigating the impact of solar energy utilization on the North Queensland electrical distribution grid. The main areas of interest are in the field of domestic and industrial hot water heating for systems employing conventional flat plate absorbers for energy collection. A computer based study has been employed to enable investigation of the large number of different circumstances which may occur.

PARTICIPANT:

James Cook University of North Queensland
Management (principal)
Stark, K. P.
Department of Civil and Systems Engineering
Townsville, Queensland 4811
AUSTRALIA

00434

The Impact of Solar Energy Utilization on Electric Power Systems

LOCATION:

St. Lucia-Brisbane in Queensland

DESCRIPTION:

Critical analyses are being made of the impact of solar hot water systems on the revenue and load characteristics of the electricity supply system of a typical city.

PARTICIPANT:

University of Queensland
Management (principal)
Jordan, T. A.
Department of Electrical Engineering
St. Lucia, Brisbane
Queensland 4067
AUSTRALIA

00435

Effect of Solar Energy on the Electricity Supply Grid

LOCATION:

Broadway, New South Wales in southeastern Australia

DESCRIPTION:

To evaluate the effect of the installation of solar energy utilization devices on electricity supply and distribution.

PARTICIPANT:

New South Wales Institute of Technology
Management (principal)
Sabine, T. M.
School of Physics and Materials
P.O. Box 123
Broadway, New South Wales 2007
AUSTRALIA

00437

Solar/Gas Water Heater Development

LOCATION:

South Australia

DESCRIPTION:

To design and construct a prototype roof-mounted solar/gas domestic water heater. Aspects Involved: Domestic hot water consumption assessment, solar panel evaluation, appliance design, experimental work and testing. Nature of Project: Prototype demonstration.

PARTICIPANT:

South Australian Gas Company
Contact
Iwanicki, W.
35 Waymouth Street
Adelaide, South Australia
AUSTRALIA

00438

Solar Water Heating

LOCATION:

Darwin, Northern Territory

DESCRIPTION:

Large-scale application of solar water heaters to dwellings.

PARTICIPANT:

Commonwealth Scientific and Industrial
Research Organization (CSIRO)
Contact
Becker, P.
Solar Engineering Unit
Division of Mechanical Engineering
P.O. Box 26
Highett, Victoria 3190
AUSTRALIA

00443

Solar Powered Telecommunications Network

LOCATION:

Papua New Guinea

DESCRIPTION:

The AWA is converting Papua New Guinea's telecommunications network from battery power to solar power. The AWA has also built and installed several small systems in Australia, including solar energy systems for powering a substantial portion of the communications network for the Momba-Sydney gas pipe line project. The Research Laboratory is involved in work to improve techniques for the direct conversion of solar energy by photovoltaic and thermoelectric means. AWA has developed solar-powered radio subscribers' telephone equipment which will be used by the Australian Post Office.

PARTICIPANT:

Amalgamated Wireless (Australasia) Limited
(AWA)
Management (principal)
P.O. Box 96
North Ryde, New South Wales 2113
AUSTRALIA

00444

Liquid Fuel Production from Agriculture and Forestry in Australia

LOCATION:

throughout Australia

DESCRIPTION:

Fuels from crops and forests are one of the alternative options for future energy supplies. A survey of the national potential to produce ethanol and methanol from arable crops, forestry and their residues shows that more than half of present liquid fuels used in transport could be met from such sources without reducing national food and fibre production from crops. The estimated retail prices of such fuels, assuming taxes and distribution costs as for motor spirit, are more than twice the retail price of motor spirit. The cost of methanol from coal is so much lower than the cost of alcohols from biomass that there are no economic reasons for initiating production of alcohols from biomass at present, but there are several reasons why research and development on alcohols from biomass should be continued.

PARTICIPANTS:

Commonwealth Scientific and Industrial
Research Organization (CSIRO)
Management (joint)
Gifford, Roger M.
Division of Plant Industry
P.O. Box 1600
Canberra City,
Australian Capital Territory 2601
AUSTRALIA

Commonwealth Scientific and Industrial
Research Organization (CSIRO)
Management (joint)
Siemon, Jim R.
Division of Mineral Chemistry
Clayton, Victoria
AUSTRALIA

Commonwealth Scientific and Industrial
Research Organization (CSIRO)
Management (joint)
Stewart, G. A.
Division of Chemical Technology
Melbourne, Victoria
AUSTRALIA

Commonwealth Scientific and Industrial
Research Organization (CSIRO)
Management (joint)
Gartside, G.
Division of Chemical Technology
Melbourne, Victoria
AUSTRALIA

Commonwealth Scientific and Industrial
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Management (joint)
Nix, H. A.
Division of Land Use Research
P.O. Box 26
Highett, Victoria 3190
AUSTRALIA

Commonwealth Scientific and Industrial
Research Organization (CSIRO)
Management (joint)
Rawlins, W. H. M.
Division of Chemical Technology
Melbourne, Victoria
AUSTRALIA

00445

Concentrating Collectors (solar process heat in Australia)

LOCATION:

Canberra, Australian Capital Territory

DESCRIPTION:

Developing a field of relatively small parabolic tracking dishes which concentrate solar heat to

dissociate ammonia. The energy produced by the collectors is then recovered by catalytically recombining the nitrogen and hydrogen to form ammonia, which is recycled back to the collecting dishes.

PARTICIPANT:

IPSEP
Contact
Nicholls, Jeff
Glenwarrin Mill
New South Wales 2429
AUSTRALIA

00446

Tubular Collectors

LOCATION:

Sydney, New South Wales

DESCRIPTION:

Developing an evacuated glass tubular collector that shows great promise in collecting heat at high enough temperature for many industrial process applications.

PARTICIPANTS:

Commonwealth Scientific and Industrial
Research Organization (CSIRO)
Research (principal)
Symons, J. G.
Research Scientist
Division of Mechanical Engineering
P.O. Box 26
Highett, Victoria 3190
AUSTRALIA

IPSEP
Contact
Nicholls, Jeff
Glenwarrin Mill
New South Wales 2429
AUSTRALIA

00447

Flat Plate Collectors

LOCATION:

Queanbeyan, New South Wales

DESCRIPTION:

Testing flat plate collectors with a timber kiln to determine solar timber drying feasibility.

PARTICIPANT:

IPSEP
Contact
Nicholls, Jeff
Glenwarrin Mill
New South Wales 2429
AUSTRALIA

00448

Experimental Solar House

LOCATION:

In the Melbourne suburb of Highett, Victoria

DESCRIPTION:

An experimental solar house has features that include solar air heating and storage, solar domestic hot water system, garage on the west to shade late afternoon sun, large windows on the northern side to admit maximum winter sun and a thick concrete floor on a half-meter of crushed rock with a fan that blows hot air from the solar collector through pipes in the rock bed which transfers heat to the rooms above by convection and radiation or blows cool air at night to reduce summer temperatures.

PARTICIPANT:

Commonwealth Scientific and Industrial
Research Organization (CSIRO)
Contact
Woolridge, Michael
Division of Mechanical Engineering
P.O. Box 26
Highett, Victoria 3190
AUSTRALIA

00449

Solar Power Station

LOCATION:

New South Wales township of Pooncarie on the Darling River

DESCRIPTION:

A high-temperature solar power station may be the first place in the world to get all its power from the sun. It uses a series of disc collectors which track the sun and produce the very high temperature. The solar power station will rely on a back-up "flash" boiler when there is no sunshine and the storage is exhausted.

PARTICIPANT:

Australian National University
Design (sole)
Kaneff, Stephen
Department of Engineering Physics, Energy
Conversion Group
Research School of Physical Sciences
P.O. Box 4
Canberra,
Australian Capital Territory 2600
AUSTRALIA

00450

Unmanned Gliders Carrying Wind Turbines**LOCATION:**

Sydney, New South Wales

DESCRIPTION:

To build a 1.7 MW prototype flying generator for testing in a remote area away from air traffic hazards. The electricity produced from these would be transmitted to the ground by tethering cables. The glider would have a wing span of about 40 m and carry four axial flow air turbines driving electricity generators. The estimated air speed needed to lift the glider is 15 knots, and Roberts reckons the high altitude winds exceed 40 knots, except for an average of half a day per month. The proposal has definite advantages of offering no thermal, gaseous or visual pollution and uses only renewable energy resource.

PARTICIPANTS:

University of Sydney
Design (joint)

Roberts, Bryan
Engineer

Sydney, New South Wales 2006
AUSTRALIA

University of Sydney
Design (joint)

Fletcher, Clive
Engineer

Sydney, New South Wales 2006
AUSTRALIA

00451

Producing Ethanol Using Zymonoras Mobilis**LOCATION:**

Kensington, New South Wales

DESCRIPTION:

A faster method of producing ethanol. Instead of using yeast in the fermentation process, the bacteria zymonoras mobilis is used. By using the bacteria, it is estimated smaller fermentation units are needed. The faster time could cut costs by 30 percent and the cost of ethanol fuel by several cents a litre.

PARTICIPANT:

University of New South Wales
Research (principal)

Rogers, Peter L.

School of Biological Technology
P.O. Box 1

Kensington, New South Wales 2033
AUSTRALIA

00452

Solar Powered Telephones**LOCATION:**

White Cliffs, New South Wales

DESCRIPTION:

Phones that depend on the sun for their power. Telecom Australia, the federal telecommunications authority, reports that the system is no different from conventionally powered phones and can carry 24 calls simultaneously. That's 5 times more than wind powered systems.

PARTICIPANT:

Australian Telecommunications
Commission (TELECOM)

00453

Solar Powered Phones on 4 Islands**LOCATION:**

Torres Strait, Queensland (Islands: Moa, Yam,
Yorke, Saibai)

DESCRIPTION:

Solar energy will be tapped to link the frail telecommunications network of four remote islands. The project involves mounting solar panels near installed telephones on the islands. The panels will generate power to enable radio telephone messages to be beamed to the main island systems.

PARTICIPANT:

Australian Telecommunications Commission
(TELECOM)

00454

Wind Power on Rottnest Island Resorts**LOCATION:**

18 kilometers off the coast of Western Australia
near Perth

DESCRIPTION:

A wind turbine power producing program. Two turbines will be installed on adjacent hills and will supply about 10% of the islands annual electricity needs.

00455

Photovoltaic Railway Communications Network

LOCATION:

from Tarcoola, South Australia through central Australia to Alice Springs, Northern Territory

DESCRIPTION:

900 solar cell modules have been ordered from Solar Power Corp., U.S.A. to power batteries for a combination microwave and VHF communication system along 800 km of railway being built by Australian National Railways. The new line, running from Tarcoola, South Australia near the southern coast to Alice Springs, Northern Territory, will have 24 photovoltaic-powered stations at 35 km intervals. The contract was awarded in November 1978. The railway is scheduled for operation by late 1980.

BUDGET:

US\$ 5 Million

PARTICIPANTS:

Australian National Railways
Management (*principal*)
Dyason, V. H.
General Manager
55 King William Road
North Adelaide, South Australia 5006
AUSTRALIA

Solar Power Corporation
Supply (*sole*)
Wurmser, John F.
President
5 Executive Park Drive
North Billerica, Massachusetts 01862
USA

00492

Solar Air Heaters for Space Heating

LOCATION:

Bayswater, Western Australia

DESCRIPTION:

An inexpensive lightweight air heater is being manufactured for use in space heating applications.

PARTICIPANT:

Small's Solar Heeta Co. Pty. Ltd.
Design (*sole*)
Small, H. C.
10 Goongarrie Street
Bayswater, Western Australia 6053
AUSTRALIA

00493

The Solar Experimental House MK1

LOCATION:

Fowlers Gap, the University of New South Wales Arid Zone Field Station

DESCRIPTION:

The project involves the design, construction and monitoring of an experimental, prefabricated solar house. The aim is to study and demonstrate the architectural integration of solar energy in domestic building by both passive and active means.

PARTICIPANT:

University of New South Wales
Management (*principal*)
Ballinger, John
Lecturer
Department of Architecture
P.O. Box 1
Kensington
New South Wales 2033
AUSTRALIA

00494

Housing Standards in Tropical Australia

LOCATION:

Brisbane, Queensland

DESCRIPTION:

Using computer simulation of the thermal response of buildings, the suitability of the traditional lightweight, elevated, fully cross-ventilated house for hot-humid and hot-dry areas and for subsequent installation of air conditioning is being examined.

PARTICIPANT:

University of Queensland
Management (*principal*)
Szokolay, S. V.
Architectural Science Unit
Department of Architecture
St. Lucia, Brisbane
Queensland 4067
AUSTRALIA

00495

Types of Houses for Different Climates

LOCATION:

Brisbane, Queensland

DESCRIPTION:

Investigation of the suitability of traditional Housing Commission type structures for adaptation to solar heating and cooling.

PARTICIPANT:

University of Queensland
Management (principal)
Szokolay, S. V.
Architectural Science Unit
Department of Architecture
St. Lucia, Brisbane
Queensland 4067
AUSTRALIA

00496

The Roof Pool**LOCATION:**

Brisbane, Queensland

DESCRIPTION:

A general investigation of roof pool technology.

PARTICIPANT:

University of Queensland
Management (principal)
Sheridan, N. R.
Department of Mechanical Engineering
St. Lucia, Brisbane
Queensland 4067
AUSTRALIA

00497

Solar Passive Wall Heating Systems**LOCATION:**

Melbourne, Victoria

DESCRIPTION:

Intensive numerical computational studies have been carried out on the applicability of the Trombe Michel wall concept to house heating. A test cell incorporating variable slot control and wall geometry has been constructed. Performance testing will be carried out to establish the effects on the air flow of temperature stratification in the room and gap width between the glazed wall and the collector element.

PARTICIPANT:

University of Melbourne
Management (principal)
Charters, W. W. S.
Department of Mechanical Engineering
Parkville, Victoria 3052
AUSTRALIA

00498

Low Energy Housing**DESCRIPTION:**

Low energy consumption housing with an emphasis on both active and passive use of solar energy.

PARTICIPANT:

Commonwealth Scientific and Industrial
Research Organization (CSIRO)
Management (principal)
Becker, P.
Solar Engineering Unit
Division of Mechanical Engineering
P.O. Box 26
Highett, Victoria 3190
AUSTRALIA

00499

Passive Heating of Buildings**DESCRIPTION:**

Maximizing passive use of solar energy in buildings, particularly government housing.

PARTICIPANT:

Commonwealth Scientific and Industrial
Research Organization (CSIRO)
Management (principal)
Becker, P.
Solar Engineering Unit
Division of Mechanical Engineering
P.O. Box 26
Highett, Victoria 3190
AUSTRALIA

00500

Open Cycle Cooling Systems**LOCATION:**

Melbourne, Victoria

DESCRIPTION:

Two approaches are being adopted to examine open cycle cooling systems. Computer studies of systems using rotary heat exchangers and the dehumidifiers and evaporative coolers are being made to compare the thermal performance of various system arrangements. A numerical approach is also being used to determine the behaviour of a water-cooled dessicant bed which it is hoped can be an energy store and dehumidifier for an open cycle cooling system. Experiments are planned to confirm the theoretical findings.

PARTICIPANT:

James Cook University of North Queensland.
Management (principal)
Close, D. S.
Department of Engineering
Townsville, Queensland 4811
AUSTRALIA

incorporates both passive heating via strategically sited windows and curtains, a solar air heater for space heating, and water heaters for service hot water. The gravel bed energy store is located under the concrete slab floor and building heating is by conduction through the slab and convection and radiation to the room.

00501

Solar Airconditioner

LOCATION:

Adelaide, South Australia

DESCRIPTION:

The project employs a distillation and reabsorption process as a means of extracting heat from buildings, using a source of low grade heat. Several advantages are claimed over lithium bromide cycle.

PARTICIPANT:

James Cook University of North Queensland.
Management (principal)
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Townsville, Queensland 4811
AUSTRALIA

00505

Heat Pipe Collectors

LOCATION:

Melbourne, Victoria in southeastern Australia

DESCRIPTION:

Laboratory studies of heat pipe collectors have confirmed the operational characteristics of these devices in terms of wick structures and possible working fluids. An extension of these laboratory tests to solar heat pipe field testing has produced three alternative designs of heat pipe collector for a range of temperature conditions between 60 deg. C and 120 deg. C. Further development work in this area is being carried on to evaluate selective microgroove surfaces and their applicability to these collectors.

PARTICIPANT:

Caulfield Institute of Technology
Management (principal)
Deutscher, K.
Department of Mechanical Engineering
900 Dandenong Road
P.O. Box 197
Caulfield East, Victoria 3145
AUSTRALIA

00502

Thermal Storage

DESCRIPTION:

Development of optimum design for thermal storage using stratified water tanks.

PARTICIPANT:

Commonwealth Scientific and Industrial
Research Organization (CSIRO)
Management (principal)
Becker, P.
Solar Engineering Unit
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Highett, Victoria 3190
AUSTRALIA

00510

**Design of Houses for Hot Humid Regions
and Suitable for Adding Solar
Airconditioning.**

LOCATION:

Hot-Humid Regions of Australia

DESCRIPTION:

To examine the climate suitability of houses in hot-humid regions and to produce an optimum design for a house that would, without air conditioning, perform at least as well as any current design but would be suitable for subsequent installation of air conditioning. The project aims to design and construct such a

00504

Low Energy Consumption House

DESCRIPTION:

A house is being constructed which

building where the reduced air conditioning requirement is satisfied by a primary solar powered system.

PARTICIPANT:

University of Queensland
Management (principal)
Szokolay, S. V.
Architectural Science Unit
Department of Architecture
St. Lucia, Brisbane
Queensland 4067
AUSTRALIA

00511

**The Analogy Theory of Combined Heat
and Mass Transfer Applied to Solar Air
Conditioning**

LOCATION:

Broken Hill, New South Wales

DESCRIPTION:

Not Available

PARTICIPANT:

University of New South Wales
Management (principal)
MacLaine-Cross, I. L.
Department of Mining and Mineral Sciences
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