

**REVIEW OF THE
MINERALS AND ENERGY RESEARCH INSTITUTE OF WA
AND
FIVE YEAR REVIEW OF THE
MINERALS AND ENERGY RESEARCH ACT 1987**

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May 2002

MERIWA REVIEW

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INTRODUCTION

THE MINERALS AND ENERGY INDUSTRIES IN AUSTRALIA

The minerals and energy industries are going through turbulent change. Major mergers and acquisitions activity, significant reduction in expenditure on research and development and a reduction in exploration activity have been typical of the sector in recent years. These pressures to reduce operational costs have been accompanied by increasing community expectations of both minimal environmental modification and high safety standards.

The push to cut costs comes at a time of record sales levels supported by the declining value in the Australian dollar. The Australian resources industry has grown exponentially starting from a minerals production base of less than \$1 Billion in 1968 to an internationally competitive, mature, diversified and export oriented industry that generated \$55.6 Billion in export earnings in 2000/01.

Western Australia produced \$27.6 Billion in minerals and petroleum production in 2000/01, an increase of 29% on the previous year.

George Savell from AMEC optimistically describes the current turbulent change as a "cyclical adjustment" but accepts that the "acceptable standards hurdle has been considerable raised in the last decade". The response from the industry has been to slash business expenditure on research and development (BERD), to cut in house research facilities, defer capital expenditure and reduce support for tertiary training facilities. There also appears to be a shift in BERD to the suppliers to the industry from operators.

BERD in the minerals sector is low at less than 1% of the value of sales. Research in the sector is principally directly funded by industry with use of the R&D Tax Concession. "The minerals industry is by far the largest industry sector utilising the tax concession at over a billion dollars a year" (Dodgson and Vandermark).

At the same time the Australian mining technology services sector is booming. Austmine estimated the value of exports in this sector at \$1.47 Billion in 1998/99 and expects that they will reach \$3 Billion in 2005 and \$6 Billion in 2010.

When launching the TIAC report "From Mines to Minds" in 1999 the TIAC Chairman, John Thompson stated:

"There is a growing consensus that Western Australia's future lies with the new knowledge intensive industries and in those parts of other industries such as mining and primary production which are knowledge-intensive."

The Premier's Science Council in their recently published report on research identified "That the mining and mineral processing sectors comprised over half of the \$340 million spent on research within the State's business sector in

1999/2000". They also reported "less than 3% of research in State Government agencies is related to the mining and energy sector yet this sector contributes around \$25 billion to the State's Gross Product". Their recommendations included the State Government committing a minimum of \$5 million to research in mining and energy.

Advances in computer and communications technology are reducing the geographic constraints of research activity and are allowing global collaboration. AMIRA, an Australian based research broker, reported that 22% of its new business activity came from South Africa and that new services were being developed for North and South America.

The Minerals Council of Australia 2001 Survey shows that government derived \$5.179 Billion in revenue from the resources companies that responded to the survey. Whilst this figure includes rail and port charges as well as employee taxation it serves to illustrate the importance of the industry to government.

In Western Australia each decade in the last forty years has seen the emergence of at least one new internationally competitive mining or mineral processing activity ranging from Mineral Sands in the 1950's, Iron ore in the 1960's, Diamonds in the 1970's to Laterite Nickel in the 1990's. This diversification of the resources economy has been a significant catalyst for growth and employment.

Department of Mineral and Petroleum Resources (MPR) claim that Western Australia's growth prospects remain strong and that the State will be able to maintain its prominence on the international mineral scene. MPR figures show that, for 2000, Western Australia supplied the following percentages of the world production of nominated minerals.

Mineral	Alumina	Diamonds	Gold	Ilmenite	Iron Ore	LNG	Nickel	Rutile	Zircon
WA %	20%	37%	8%	20%	14%	8%	14%	24%	32%

There is over \$20 Billion potential investment in the minerals and energy sector awaiting approval.

In this environment of potential growth coupled with current uncertainty it is essential that there be significant investment in research and development.

MERIWA is unique in Australia in brokering partnerships for minerals and energy research as well as contributing funds to that research. Given the importance of encouraging cooperation and good science in this sector MERIWA's role should be critically examined with a view to improve its contribution in to the development of the State. There also needs to be discussion on MERIWA's role in supporting the growth of the resources services sector in Western Australia.

MERIWA'S OPERATION 1988 TO 2002

MERIWA commenced operations in February 1988 combining the functions of the Western Australian Mining and Petroleum Research Institute (WAMPRI) and the Solar Energy Research Institute of Western Australia (SERIWA).

The Minerals and Energy Research Act 1987 (MER Act) establishes MERIWA as a statutory authority and delineates MERIWA's powers and functions. Extracts from the MER Act are attached at Appendix 4.

Documents forming part of the unpublished history report unchanged functions for MERIWA/WAMPRI over a twenty-year period:

- The encouragement and development of the mining and petroleum industries within Western Australia by fostering and promoting all aspects of mining and petroleum research.
- The receipt and consideration of applications from persons undertaking or wishing to undertake mining and petroleum research projects and seeking funds from the Institute to supplement funds from sponsoring companies.
- The monitoring, evaluation and publication of mining and petroleum research projects to which the Institute has allocated funds.

It is relevant that these actual functions are narrower than the functions outlined in the MER Act.

The resources available to MERIWA/WAMPRI are summarised in Table 1. This table does not include the \$3.82 Million expended by SERIWA between 1981/82 and 1986/87. The figures show a low but increasing administration cost for each research expenditure dollar, a relatively constant allocation from government and a good multiplier for the government investment in research.

The figures are significantly modified by the exclusion of renewable energy expenditure and comparing total revenue to the budget appropriation. The amended figures are shown in Table 2. The multiplier approaches the \$3 to \$1 claimed by the MERIWA Board Chair at the 2001 Estimates Committee hearing but administration costs rise to 10% of expenditure.

The organisational chart for MERIWA is attached at Appendix 7 showing the relationship between the Board of Directors, the Minerals Research Advisory Committee (MRAC), the Sub-Committees and the Secretariat. The Secretariat officers are all part-time and employed under contract.

MERIWA's effectiveness is currently indicated by:

- The proportion of industry sponsorship
- The quality, quantity and relevance of the research it brokers and supervises
- Low administration costs.

Since 1981 MERIWA and its predecessors WAMPRI and SERIWA have brokered a total of 222 research projects worth around \$30 Million. A list of published reports is attached at Appendix 8. A summary of the sale and distribution of recent minerals reports is shown at Table 3. There is clearly a decline in interest beyond project sponsors in MERIWA publications. MERIWA have also awarded 24 doctoral scholarships with a total value over \$500,000. Recent scholarship expenditure is shown at Table 2.

The value of research commissioned by MERIWA each year only represents about 1% of the BERD by the minerals and energy sector in WA and this illustrates the quandary for MERIWA. Should it stick with its successful niche or does it have a much greater role to play in encouraging the development of Western Australia?

REVIEW OF MERIWA AND THE MINERALS AND ENERGY RESEARCH ACT

The Minister for State Development initiated this review both to respond to the recommendations of the Machinery of Government Taskforce as well as to meet the commitment for a further review of the MER Act, due in November 1998.

The review focuses on the period from July 1993 to June 2001 but also includes activity over the twenty-year operation of WAMPRI, SERIWA, and MERIWA. It also attempts to identify the challenges and opportunities facing MERIWA over the next five years.

The terms of reference for the review are attached at Appendix 1.

Chris Fitzhardinge, a Project Officer attached to the Office of the Minister of State Development was appointed in November 2001, to carry out the review. The review was to have been completed by March 2002.

The approach adopted for the review involved formal interviews with stakeholders including MERIWA Board Directors, MRAC Members, the MERIWA Executive Officer, representatives from relevant government agencies, industry associations, research bodies, scholarship recipients and resources companies.

A list of contacts made during the review is attached at Appendix 3.

The information and views provided during these interviews was supplemented through the references at Appendix 5.

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Table 2

**MERIWA Income and Expenditure 1995-2001
Excluding Renewable Energy**

	95/96 \$000	96/97 \$000	97/98 \$000	98/99 \$000	99/00 \$000	00/01 \$000	Total 95-01 \$000
CRF Grant	600	592	582	583	606	611	3574
Interest	127	109	81	75	90	110	592
Sponsorship From Industry	1406	762	660	1443	489	965	5725
Other Revenue	10	9	7	2	2	2	32
Total Revenue	2143	1472	1330	2103	1187	1688	9923
Sponsorship Revenue to Total Revenue ratio	0.656	0.517	0.496	0.686	0.412	0.572	0.577
Research Expenditure	1956	1301	1151	1939	821	1272	8440
Scholarship Expenditure	80	80	50	25	35	72	342
Other Expenditure	146	150	155	156	179	184	970
Total Expenditure	2182	1531	1356	2120	1035	1528	9752
Other Expenditure to Total Expenditure Ratio	0.067	0.098	0.114	0.074	0.173	0.120	0.099

Table 3

**MERIWA Publications
Excluding Renewable Energy**

Year	Research Reports Published	Fiche Reports Distributed or Sold	Hard Copy Reports Distributed or Sold	CD Reports Distributed or Sold	Total Reports Distributed or Sold	Reports Sold	Percentage Sold	Revenue from Report Sales	Average Revenue per Report Sold
95/96	15	811	175	-	986	211	21.4%	\$ 8508	\$40.32
96/97	10	468	119		585	153	26.2%	\$ 7771	\$50.79
97/98	10	511	150		661	159	24.1%	\$ 6883	\$43.29
98/99	10	511	135	2	648	33	5.1%	\$ 2375	\$71.96
99/00	5	250	55	19	324	23	7.1%	\$ 1500	\$65.21
00/01	8	394	73	10	477	27	5.7%	\$ 2095	\$77.59
Total	61	2943	707	31	3681	606	16.5%	\$29132	\$48.07
Average	10	490	118		614	101	16.5%	\$ 4855	\$48.07

EXECUTIVE SUMMARY

A key initiative of the Gallop Government has been the drive for a leaner, more efficient public sector. The report of the Machinery of Government Taskforce delivered in June 2001 supported statutory authorities being absorbed into government departments unless there were compelling reasons for alternative action.

In October 2001, Premier Geoff Gallop issued guidelines for the review of the State's 165 statutory authorities to be completed by July 2002.

There also was a commitment to complete an assessment of the second five years of operation of the Minerals and Energy Research Institute of Western Australia (MERIWA) and its supporting legislation.

This Review examines the operation of MERIWA from July 1993 to June 2001 and attempts to identify the challenges and opportunities facing MERIWA to 2006.

The terms of reference for the Review are as follows:

TOR 1) Assess the appropriateness and feasibility of incorporating all or part of the functions of MERIWA into the Department of Industry and Technology (DoIT), Office of Energy (OOE) or the Department of Mineral and Petroleum Resources (MPR).

TOR 2) Examine whether the objects and functions of MERIWA are still relevant to present circumstances, including expectations of business, the mining industry and research bodies.

TOR 3) Examine and make recommendations on the membership and role of the Board of MERIWA, the Minerals Research Advisory Committee (MRAC) and the Energy Research Advisory Committee (ERAC).

TOR 4) Examine the roles of the Western Australian Technology and Industry Advisory Council (TIAC), the Perth International Centre for the application of Solar Energy (CASE), the Centres of Excellence Program, The Innovate WA Program and the Premier's Science Council and advise on whether they should influence the role and structure of MERIWA.

TOR 5) Consider and have regard to the effectiveness of the operations of the MERIWA Board and the two advisory committees.

TOR 6) Consider the need for the continuation of part or all of the functions MERIWA.

The Reviewer conducted 31 formal interviews with MERIWA Board Directors, MRAC Members, the MERIWA Executive Officer, representatives from relevant government agencies, industry associations, research bodies, scholarship recipients, mining companies and energy companies.

A list of the contacts made during the review is attached at Appendix 3.

The stakeholder consultations overwhelmingly support retention of MERIWA as an independent statutory authority and the formalisation of the transfer of the renewable energy functions that have been performed by the OOE since 1995.

Concerns were raised about the limited amount of funding provided by MERIWA for each project, the expected leverage of industry funds, the absence of a strategic direction for MERIWA and the limited understanding of MERIWA.

The recommendations arising from the review are:

1) That MERIWA remain an independent statutory authority.

Whilst MERIWA's functions could be carried out by an agency such as MPR the existing arrangement is working effectively, there are no issues of concern to government, and MERIWA attracts significant voluntary industry expertise.

2) That the renewable energy research functions be formally transferred to the Sustainable Energy Development Office (SEDO) at the OOE together with the funding for these functions. This transfer should take place from July 1, 2002.

The renewable energy research functions have been carried out by OOE since 1995 on the advice of the Alternative Energy Development Board (AEDB). The OOE derives no power nor has any protection under the MER Act and the current situation of MERIWA simply being a source of funding for the AEDB recommended projects provides no benefit to the State Government. The recent formation of SEDO further strengthens the case for the early change to funding arrangements.

3) That the Minister for State Development advises the MERIWA Board annually of a preferred strategic direction for research. This advice should be based on advice given to the Minister from TIAC, MPR, MERIWA, the State Development Forum and the Premier's Science Council. The Director General, MPR, should nominate a member of the MPR Executive with a background in research, strategic planning or resources development to cooperate with the MERIWA Board to assist compatibility between sponsored research and the strategic priorities of the State Government in the resources sector.

Feedback from the review has raised concerns that MERIWA's research funding is largely reactive to short term industry priorities and is not linked to strategic growth opportunities.

There is currently common membership between MERIWA and TIAC through Rex Baker but there is no formal linkage to the Premier's Science Council or to the State Development Forum. If, for example, it was a State Government priority to develop the mining services sector MERIWA should proactively support research that would provide growth opportunities in that sector.

It is considered that an annual meeting between the Minister and the MERIWA board, also attended by representatives from the key science and technology policy advisory groups, would assist the state achieve strategic priorities. A further constructive link would be to arrange for, the Director General, MPR, to nominate a member of the MPR Executive with a background in research, strategic planning or resources development to cooperate with the MERIWA Board to assist compatibility between sponsored research and the strategic priorities of the State Government in the resources sector.

4) That MERIWA puts greater emphasis on function 5(J) and conduct an annual seminar showcasing recent research.

The name MERIWA is widely known and respected but the function of MERIWA, its current research projects and how it operates are not well known. There is a significant risk that the goodwill that exists toward MERIWA across industry may be lost with changes to key personnel in industry. Sales of publications are falling (see Table 3 page 7) and MERIWA has been unable to secure equivalent funding to earlier years. Improving MERIWA's profile should assist attract federal funds, boost circulation of publications and shore up industry support. MPR operates a number of annual industry events such as the Petroleum Day

5) That the MERIWA Board be expanded to five directors with specified representation from each of the Petroleum Industry, the Minerals Industry and the Research Sector. The maximum term of consecutive appointments should be 10 years with staggered terms of appointment providing for a fresh board member every 2 years.

The last new member appointed to the MERIWA Board was in 1993 and the average board service is 12 years. It is desirable that there be limited, but steady, turnover in board membership. Expanding the board provides for the appointment of an immediate fresh member as well as allowing the introduction of specified representatives for the three sectors. Transitional provisions should apply to allow existing board members to serve in excess of 10 years with the first retirement of an existing board member in 2004.

6) Alter the function of MERIWA to encourage the development of the minerals and energy industries *for the benefit* of the State by fostering and promoting all aspects of mineral and energy research.

The existing function of MERIWA (to encourage the development of the minerals and energy industries *within* the State) does not provide sufficient flexibility to deal with offshore developments in Commonwealth waters or for research on mineral services for projects in other states or countries that are serviced from Western Australia.

7) Add an additional subsection under Function of the Institute 5(k) Assist develop minerals and energy research capacity in Western Australia.

The existing functions are project specific and provision of funding by MERIWA for a broad research purpose may be beyond the existing powers of MERIWA.

Even though it will not be a recommendation of this review to remove the focus on research projects some flexibility should be provided to support the development of research capability.

8) Amend the MER Act to remove the renewable energy research functions and ERAC. Make transitional arrangements for existing funds in the energy account and responsibility for funding ongoing energy projects to be transferred to the OOE. Redefine energy research under the MER Act as being research that supports development of the primary energy industry.

The removal of the renewable energy functions to the OOE will require changes to the MER Act. There is a strong preference that MERIWA retain its existing name and that the “E” of MERIWA be linked to the primary Energy industry.

9) Amend the MER Act to specifically provide under the powers of the Institute provision to receive funds to support its functions including funds from industry, sponsorship and bequests.

The financial provisions under Part V of the MER Act are not fully reflected in section 6, Powers of the Institute. It is not clear as to whether MERIWA could receive funds from a bequest or donation that is not immediately linked to a research project. It is desirable that MERIWA is able to benefit from philanthropy and have the ability to hold donated funds for broadly specified purposes.

10) Amend function 5(h) under the MER Act requiring a hard copy of all reports be maintained at the Department of Mines to requiring that reports be maintained in a format able to be readily accessed by the community and industry.

The existing provision is being breached as the renewable energy reports have been held by OOE since 2000. As more reports are completed in digital format and may not be held in hard copy it is desirable that a more flexible clause is used for publications.

11) Provide in the MER Act for teleconferences, videoconferences and other forms of effective interaction as valid means of participating in a board meeting.

This provision should maximise attendance at board meetings and provide more flexibility in scheduling meetings.

12) Include provision in the MER Act for intellectual property to mirror the provisions in the research agreement.

Whilst the aim of MERIWA should be make the quality research broadly available to West Australians from time to time circumstances will arise where MERIWA should hold and deal in intellectual property. There is already provision in the research agreement for this eventuality but the MER Act should support the provisions in the research agreement.

13) The MER Act should be amended to provide for the MER Act and the effectiveness of MERIWA to be the subject of a formal review every 5 years.

Regular formal review is consistent with the 1997 Council of Australian Government (COAG) endorsed Principles and Guidelines.

14) Penalties in the MER ACT 34.2 (b) should be increased to \$10,000 (providing false or misleading information to MERIWA) and 35.6 to \$100,000 (breaching secrecy provisions).

These penalties have remained unchanged since 1987 and need to be increased to act as a deterrent.

15) Amend the MER Act to provide the Minister with the power to remove an MRAC member who no longer has membership or status within the organisation or sector they were appointed to represent.

It is a usual provision of other legislation to be able to be able to replace a member who no longer has formal links to the organisation or sector they were appointed to represent.

16) Amend the MER ACT to include provision of advice on minerals and energy research to the Minister as a function of MERIWA.

It is a usual provision under an Act for boards to provide advice to the Minister.

17) Make the balance of amendments identified in Appendix 6.

This opportunity should be taken to simplify the Act as there are no longer any requirements for transitional provisions. There are also changes to entity descriptions and provisions to simplify operation of the Act that are recommended.

REVIEW PROCESS

The Minister for State Development advised the Premier, on November 15, 2001, that Mr Chris Fitzhardinge would conduct the review of MERIWA with a report expected by the end of March 2002.

Draft terms of reference were prepared by the reviewer with input from Lee Ranford (MPR) and Dr Colin Branch (Chair of MERIWA). The Minister for State Development approved these terms of reference and on November 26, 2001 formally advised the Director General MPR, Dr Jim Limerick and Chair of MERIWA, Dr Colin Branch of the commencement of the review enclosing the terms of reference.

The reviewer attended the December meetings of MRAC and the MERIWA Board. Between December 3, 2001 and February 1, 2002 over 30 formal interviews were held with stakeholders. These interviews ranged in duration from 35 minutes to over an hour and sought views on the structure of MERIWA, its effectiveness and how it should operate into the future. The persons interviewed are included in the MERIWA Review Contacts Summary at Appendix 3.

As the interviews were progressed a number of common themes necessitating changes to the MER Act emerged. Support for these legislative changes was canvassed at subsequent interviews.

There were a significant number of documents and publications that were relevant to the review and these are listed at Appendix 5.

A draft report was prepared in February, including recommended legislative amendments for feedback from MERIWA and MPR.

A final report will be submitted to the Minister for State Development in May 2002.

RESPONSE TO TERMS OF REFERENCE

TOR 1) Assess the appropriateness and feasibility of incorporating all or part of the functions of MERIWA into the Department of Industry and Technology (DoIT), Office of Energy (OOE) or the Department of Mineral and Petroleum Resources (MPR).

The Machinery of Government Taskforce (MOG) recommended that “ The functions of each statutory authority..should be reviewed..to assess the appropriateness and feasibility of incorporating those functions into departments of State”.

The guidelines for the review propose that the review adopt as its basic premise that the functions of current statutory authorities ought to be incorporated into departments unless there are compelling reasons why this should not be so.

MOG’s premise was that statutory authorities were “inflexible, cumbersome and unresponsive to changing administrative needs” and that “the greater independence of statutory authorities from government can also compromise appropriate accountability”.

The Premier, Dr Gallop, in responding to the MOG report, sought “greater flexibility, improved transparency and accountability” as well as an “attack on waste, duplication and inefficiency”.

MERIWA does not fall into the nature of statutory authority being highlighted by MOG and Dr Gallop as:

- There are no concerns for government on accountability and transparency. MERIWA is subject to the Finance Administration and Audit Act 1985 and has received unqualified audits (other than for the development of performance indicators which is now resolved). It has established a solid reputation across government, academia and industry and has avoided duplication with other bodies.
- MERIWA is demonstrably achieving valuable outcomes at low administration cost in an area critical for the economic future of the State and has been responsive to changing industry, government and administrative needs.
- The research projects have immediate value to industry and there was a feeling of industry ownership of MERIWA.

It is clearly possible for the functions of MERIWA to be performed by government departments. It was the view of the majority of those stakeholders interviewed that it would be inappropriate for minerals and energy research to be managed and brokered by government.

- 84% of those interviewed believed that the effectiveness of MERIWA would decline if it were to operate from within a government department.
- Over 70% of those interviewed were concerned about reduced access to skills, a decline in leveraging research funds and less involvement of the private sector if MERIWA ceased to be an independent statutory authority.

The compelling reasons advanced to support retention of the existing independent statutory model for MERIWA are:

- Strong industry support with both funding for projects and mobilizing volunteer input with high skills to broker, assess and assist manage research projects. The current structure of MERIWA was seen as pivotal in attracting BERD as well as supporting “difficult to manage” cooperative research projects.
- The independence of MERIWA reduced the potential for conflict of interest that could arise if MERIWA was within a department having a regulatory function.
- Trust from industry that industry funds would be expended on industry priorities.
- Becoming part of a department could threaten the unique role of MERIWA as being an independent broker between industry, government and the research sector.

There was strong support that the renewable energy research functions be transferred to the Sustainable Energy Development Office (SEDO) at OOE together with the funding for these functions.

Renewable energy was seen as being at a different stage to the type of research brokered by MERIWA with the renewable energy industry unable to source significant sponsorship and also using demonstration projects as a way of adopting new technology.

The variety of ways that government has engaged with renewable energy with SERIWA, the Energy Planning and Policy Bureau (EPPB), Renewable Energy Advisory Council (REAC), CASE, AEDB, OOE and now SEDO reflects the emerging nature of this industry.

The renewable energy research functions have been fully carried out by OOE since 1995 on the advice of the Alternative Energy Development Board (AEDB). The OOE derives no power nor has any protection under the MER Act. OOE arrange their own research agreements and publish the results of the research.

The 51 renewable energy reports published by MERIWA were transferred to OOE in 2000. The current situation of MERIWA simply being a source of funding for the AEDB recommended projects provides no benefit to the State Government. The recent formation of SEDO further strengthens the case for the early transfer of funding arrangements to OOE.

Relevant recommendations

- 1) That MERIWA remain an independent statutory authority.
- 2) That the renewable energy research functions be formally transferred to the Sustainable Energy Development Office (SEDO) at the OOE together with the funding for these functions.
- 8) Amend the MER Act to remove the renewable energy research functions and ERAC. Make transitional arrangements for existing funds in the energy account and responsibility for funding ongoing energy projects to be transferred to the OOE. Redefine energy research under the MER Act as being research that supports development of the primary energy industry.

TOR 2) Examine whether the objects and functions of MERIWA are still relevant to present circumstances, including expectations of business, the mining industry and research bodies.

Most of the stakeholders interviewed felt that the objects and functions of MERIWA were sufficiently broad to allow MERIWA to remain relevant and effective.

The Function of MERIWA is detailed within the MER Act at Appendix 4 (Section 5 pp5-7).

Three changes received broad support. The first was amending the function from “the development of the mineral and energy industries within the State” to “the development of the mineral and energy industries for the benefit of the State”. This change was supported as much of the energy industry operates offshore from Western Australia and state boundaries being less relevant to the industry.

The second change was the updating 5 (h) to allow for changed technology and greater flexibility in making research reports accessible to the industry and the public.

The third change was to allow MERIWA to receive funding, from industry and the community, without it having to be specifically linked to a research project.

It is a usual provision under an Act for boards to provide advice to the Minister. This function is not included in the MER Act. Section 5 of The MER Act should be amended to incorporate provision of advice.

Many of the issues raised through the stakeholder interviews under this TOR were policy matters. Examples were overdoing the pursuit of multiple sponsors for projects, the low limit on maximum MERIWA contributions to projects and the need for a strategic approach to prioritise funding.

A number of stakeholders strongly supported MERIWA taking a much greater role in promoting the resources sector, profiling the way research supported economic growth and the role of science in developing the economy. It appeared that major opportunities were being captured by other research sectors such as biotechnology and pure science and that MERIWA should carry part of the task of promoting research in the minerals and energy sector. It was also felt that MERIWA did not widely promote the research projects it had brokered, managed and supported. The concept of an annual seminar was suggested to assist raise the profile of MERIWA, publicise the research and promote the contributions of sponsors.

Views were evenly divided on MERIWA's role in supporting visiting fellows and attracting internationally recognised researchers. Several responses said the government should focus on supporting initiatives such as ARRC and the maintaining existing key researchers before embarking on a bidding war for research celebrities.

There was broad support for the continuation of research scholarships at about the current level of resourcing. Interviews with scholarship recipients supported the value of the scholarships in their present form. No change is recommended to the current processes for publicising, awarding and managing research scholarships.

The existing functions in the MER Act are project specific and provision of funding by MERIWA for a broad research purpose may be beyond the existing powers of MERIWA.

Even though it will not be a recommendation of this review to remove the focus on research projects some flexibility should be provided to support the development of research capability.

The provisions within the MER Act for intellectual property are narrow and Section 6 (2) (d) needs to be modified to reflect the current approach to intellectual property.

The penalties in the MER Act have remained unchanged since 1987 and need to be increased to act as a deterrent.

Relevant Recommendations

4) That MERIWA puts greater emphasis on function 5(J) and conduct an annual seminar showcasing recent research.

6) Alter the function of MERIWA to encourage the development of the minerals and energy industries *for the benefit* of the State by fostering and promoting all aspects of mineral and energy research.

7) Add an additional subsection under Function of the Institute 5(k) Assist develop minerals and energy research capacity in Western Australia.

9) Amend the MER Act to specifically provide under the powers of the Institute provision to receive funds to support its functions including funds from industry, sponsorship and bequests.

10) Amend function 5(h) under the MER Act requiring a hard copy of all reports be maintained at the Department of Mines to requiring that reports be maintained in a format able to be readily accessed by the community and industry.

12) Include provision in the MER Act for intellectual property to mirror the provisions in the research agreement.

14) Penalties in the MER ACT 34.2 (b) should be increased to \$10,000 (providing false or misleading information to MERIWA) and 35.6 to \$100,000 (breaching secrecy provisions).

16) Amend the MER ACT to include provision of advice on minerals and energy research to the Minister as a function of MERIWA.

TOR 3) Examine and make recommendations on the membership and role of the Board of MERIWA, the Minerals Research Advisory Committee (MRAC) and the Energy Research Advisory Committee (ERAC).

Feedback from the review has raised concerns that MERIWA's research funding is largely reactive to short term industry needs and is not necessarily linked to government priorities or strategic growth opportunities.

There is currently common membership between MERIWA and TIAC through Rex Baker but there is no formal linkage to the Premier's Science Council or to the State Development Forum. If, for example, it was a state government priority to develop the mining services sector MERIWA should proactively support research that would provide growth opportunities in that sector. It is considered that an annual meeting between the Minister and the MERIWA board, also attended by representatives from the key science and technology policy advisory groups, would assist the State achieve strategic priorities.

The last new member appointed to the MERIWA Board was in 1993 and the average board service is 12 years. Whilst there was strong support for the work of the existing Board it was felt that there should be limited, but steady, turnover in board membership.

Expanding the board provides for the appointment of an immediate fresh member as well as allowing the introduction of specified representatives for the three sectors. Transitional provisions should apply to allow existing board members to serve in excess of 10 years with the first retirement of an existing board member in 2004.

MRAC was seen as being a key element to the success of MERIWA and having an appropriate membership and role. Provision should be made for the Minister to have power to remove MRAC Members who no longer have status or membership with the organisations they were chosen to represent. A further minor amendment in Appendix 6 limits the number of additional members that the Minister can appoint to 8. There currently is no limit.

If the renewable energy functions are formally transferred from MERIWA to OOE there is no need for ERAC. ERAC's role is effectively being carried out by AEDB. ERAC has not existed since 1995.

Relevant Recommendations

3) That the Minister for State Development advises the MERIWA Board annually of a preferred strategic direction for research. This advice should be based on advice given to the Minister from TIAC, MPR, MERIWA, the State Development Forum and the Premier's Science Council. The Director General, MPR, should nominate a member of the MPR Executive with a background in research, strategic planning or resources development to cooperate with the MERIWA Board to assist compatibility between sponsored research and the strategic priorities of the State Government in the resources sector.

5) That the MERIWA Board be expanded to five directors with specified representation from each of the Petroleum Industry, the Minerals Industry and the Research Sector. The maximum term of consecutive appointments should be 10 years with staggered terms of appointment providing for a fresh board member every 2 years.

8) Amend the MER Act to remove the renewable energy research functions and ERAC. Make transitional arrangements for existing funds in the energy account and responsibility for funding ongoing energy projects to be transferred to the OOE. Redefine energy research under the MER Act as being research that supports development of the primary energy industry.

15) Amend the MER Act to provide the Minister with the power to remove an MRAC member who no longer has membership or status within the organisation or sector they were appointed to represent.

TOR 4) Examine the roles of the Western Australian Technology and Industry Advisory Council (TIAC), the Perth International Centre for the application of Solar Energy (CASE), the Centres of Excellence Program, The Innovate WA Program and the Premier's Science Council and advise on whether they should influence the role and structure of MERIWA.

TIAC has recently completed a series of reports promoting a strategic response to the challenges of globalisation and supporting "the growth of a resources-based knowledge intensive industry sector in Western Australia". In

February 2002 the Premier's Science Council Report on research also "seeks to build a more diversified economy with expanded areas that will thrive in the global knowledge economy".

The Premier's Science Council "seeks to create a more effective research culture across Government agencies by building on successful programs, ensuring that research programs fit with Government policy and departmental objectives...".

There clearly needs to be a formal mechanism for communicating Government policy to MERIWA as well as a process for MERIWA to influence policy.

In the short term, while an industry policy is under review, it is recommended that the Minister be the policy link between government and MERIWA and that the Director General, MPR, should nominate a member of the MPR Executive with a background in research, strategic planning or resources development to cooperate with the MERIWA Board to assist compatibility between sponsored research and the strategic priorities of the State Government in the resources sector.

CASE is being absorbed into OOE and with the formal transfer of renewable energy to OOE this element of the TOR was not pursued.

The Centres of Excellence (COE) and Cooperative Research Centres (CRC) Programs were assessed and there appeared to be no concerns between the 14 geoscience facilities and the role of MERIWA. Over \$10 million of State Government funding has been provided to COEs and CRCs.

The \$50 million, 4 year, Innovate WA program is in the early stages of its development. The objectives of Innovate WA include strengthening the research capacity of the State and building links between industry and research. There is a high likelihood that MERIWA will be able to work with Innovate WA for mutual benefit.

MERIWA should closely monitor the activities and programs under Innovate WA to look for opportunities to foster minerals and energy research.

Relevant Recommendations

3) That the Minister for State Development advises the MERIWA Board annually of a preferred strategic direction for research. This advice should be based on advice given to the Minister from TIAC, MPR, MERIWA, the State Development Forum and the Premier's Science Council. The Director General, MPR, should nominate a member of the MPR Executive with a background in research, strategic planning or resources development to cooperate with the MERIWA Board to assist compatibility between sponsored research and the strategic priorities of the State Government in the resources sector.

TOR 5) Consider and have regard to the effectiveness of the operations of the MERIWA Board and the two advisory committees.

The formal transfer of renewable energy research will remove the need for one of the advisory committees (ERAC).

MRAC was regarded by stakeholders as being effective as well as being an environment promoting enthusiasm, pride and voluntary contribution. There was concern about membership being expanded significantly beyond the current membership.

MRAC was seen as being a key element to the success of MERIWA and having an appropriate membership and role. Provision should be made for the Minister to have power to remove MRAC Members who no longer have status or membership with the organisations they were chosen to represent. A further minor amendment in Appendix 6 limits the number of additional members that the Minister can appoint to 8. There currently is no limit.

Stakeholders supported a process of steady turnover the board by expanding membership to 5 and having a new member appointed every two years.

Increasing the hours of the Executive Officer was suggested by a number of stakeholders as essential to raise the profile of MERIWA, to secure alternative funding sources and to organise promotional events. It should be the role of the MERIWA board to determine how to resource any additional activity.

Relevant recommendations

5) That the MERIWA Board be expanded to five directors with specified representation from each of the Petroleum Industry, the Minerals Industry and the Research Sector. The maximum term of consecutive appointments should be 10 years with staggered terms of appointment providing for a fresh board member every 2 years.

8) Amend the MER Act to remove the renewable energy research functions and ERAC. Make transitional arrangements for existing funds in the energy account and responsibility for funding ongoing energy projects to be transferred to the OOE. Redefine energy research under the MER Act as being research that supports development of the primary energy industry.

11) Provide in the MER Act for teleconferences, videoconferences and other forms of effective interaction as valid means of participating in a board meeting.

15) Amend the MER Act to provide the Minister with the power to remove an MRAC member who no longer has membership or status within the organisation or sector they were appointed to represent.

TOR 6) Consider the need for the continuation of part or all of the functions MERIWA.

The work of MERIWA was strongly supported with the emphasis on stakeholder discussion being expansion of MERIWA's role.

MERIWA has been able to manage its own funds and has been able to offset its administrative costs with annual interest earnings averaging \$100,000 (see Table 2). Table 5 shows the MERIWA Risk and Funding Profile. The Department of Treasury and Finance has specifically established the Public Bank Account facility to allow statutory authorities access to low risk investment with a reasonable rate of return. The Board should consider depositing half of their short-term investment funds in this facility.

The environment in which MERIWA operates is going through significant change and it is appropriate that the role and effectiveness of MERIWA and the MER act are reviewed every 5 years.

Regular formal review is consistent with the 1997 Council of Australian Government (COAG) endorsed Principles and Guidelines.

Relevant recommendations

13) The MER Act should be amended to provide for the MER Act and the effectiveness of MERIWA to be the subject of a formal review every 5 years

16) Amend the MER ACT to include provision of advice on minerals and energy research to the Minister as a function of MERIWA.

Table 4

**MERIWA Research Status
Excluding Renewable Energy**

Year	New Projects Approved	Projects in Progress	Projects Completed	Reports not Published	Reports Published	Cumulative Total of Minerals Reports	Total Including Energy Reports
93/94	9	34	14	4	14	89	121
94/95	8	34	11	4	9	98	138
95/96	10	30	14	3	15	113	157
96/97	9	29	11	7	9	122	169
97/98	9	29	13	9	10	132	
98/99	11	29	14	9	8	140	
99/00	7	28	18	10	5	145	
00/01	8	21	8	16	7	152	206
Total	71	234	103	61	77		
Average	9	29	13	8	10		

Table 5**MERIWA Risk and Funding Profile**

Year	Research Approved but not Drawn \$	Sponsors Funds Committed but not Paid \$	Short term Investment \$	Cash at Bank and On Hand \$	Equity \$
93/94	2939272	1419733	1561415	78202	119768
94/95	2691713	974967	1738023	63574	87209
95/96	2487851	1198234	1417002	79937	218731
96/97	2302063	832917	1184200	528443	251974
97/98	1849118	606851	1284347	163910	25784
98/99	2602026	1033739	1581416	136222	159923
99/00	1845844	831870	1477628	(64221)	411032
00/01	2490645	1171004	1733650	9832	419955
Total	19208532	8069315	11977681	859677	1694376
Average	2401066	1008664	1497210	107460	211797

Research is only approved, including funding for out years if there are funds available in the current year budget. Major risk is sponsorship default.

Equity should be held at around \$200,000 to cover the risk of sponsor default.

Projects have been managed to completely avoid cost overruns.

Cash at bank matches monthly demand and has run close at times to going into overdraft.

Cash at Bank should operate at up to \$160,000.

MERIWA averages \$1.5 million short-term investment. Currently this is \$1.75 million in three placements. One placement is with the National Australia Bank (\$600,000) and two with BankWest (\$450,000 and \$700,000). MERIWA should consider using the Public Bank Account facility through the Department of Treasury and Finance. Around \$750,000 should be invested in this account that offers equivalent rates to those being achieved through NAB and BWA.

Appendix 1

TERMS OF REFERENCE

TOR 1) Assess the appropriateness and feasibility of incorporating all or part of the functions of MERIWA into the Department of Industry and Technology (DoIT), Office of Energy (OOE) or the Department of Mineral and Petroleum Resources (MPR).

TOR 2) Examine whether the objects and functions of MERIWA are still relevant to present circumstances, including expectations of business, the mining industry and research bodies.

TOR 3) Examine and make recommendations on the membership and role of the Board of MERIWA, the Minerals Research Advisory Committee (MRAC) and the Energy Research Advisory Committee (ERAC).

TOR 4) Examine the roles of the Western Australian Technology and Industry Advisory Council (TIAC), the Perth International Centre for the application of Solar Energy (CASE), the Centres of Excellence Program, The Innovate WA Program and the Premier's Science Council and advise on whether they should influence the role and structure of MERIWA.

TOR 5) Consider and have regard to the effectiveness of the operations of the MERIWA Board and the two advisory committees.

TOR 6) Consider the need for the continuation of part or all of the functions MERIWA.

Appendix 2

ABBREVIATIONS AND ACRONYMS

ACMER	Australian Centre for Mining Environmental Research
AEDB	Alternative Energy Development Board (Office of Energy)
AMEC	Association of Mining and Exploration Companies
AMIRA	Australian Mineral Industry Research Association
APPEA	Australian Petroleum Production and Exploration Association
ARRC	Australian Resources Research Centre (CSIRO)
BERD	Business Expenditure on Research and Development
CASE	Perth International Centre for Application of Solar Energy
CCI	Chamber of Commerce and Industry
CME	Chamber of Minerals and Energy of Western Australia
COAG	Council of Australian Governments
CoE	Centres of Excellence Program
CRC	Cooperative Research Centre
CRF	Consolidated Revenue Fund (now Consolidated Fund)
CSIRO	Commonwealth Scientific and Industrial Research Organisation
Curtin	Curtin University of Technology
DITR	Department of Industry Tourism and Resources (Federal)
DoIT	Department of Industry and Technology
DPC	Department of Premier and Cabinet
DTF	Department of Treasury and Finance
ECU	Edith Cowan University
EPPB	Energy planning and Policy Bureau
ERAC	Energy Research Advisory Committee (MERIWA)
MER Act	Minerals and Energy Research Act 1987
MERIWA	Mineral and Energy Research Institute of Western Australia
MOG	Machinery of Government Taskforce
MPR	Department of Mineral and Petroleum Resources
MRAC	Minerals Research Advisory Committee (MERIWA)
Murdoch	Murdoch University
OOE	Office of Energy
REAC	Renewable Energy Advisory Council
SEDO	Sustainable Energy Development Office (OOE)
SERIWA	Solar Energy Research Institute of Western Australia
TIAC	Western Australian Technology and Industry Advisory Council
UWA	University of Western Australia
WAMPRI	Western Australian Mining and Petroleum Research Institute
WASM	Western Australian School of Mines
WMC	WMC Resources (Western Mining)

Appendix 3

MERIWA REVIEW CONTACTS SUMMARY

Board Chairperson: Dr Colin Branch

Directors: Prof Alan Billings

Rex Baker

Rowley Butters

MRAC Chair: Prof Odwyn Jones

MRAC Members: Dr Don Martin (MPR)

Dr Alison Ord (CSIRO)

Assoc Prof Peter May (Murdoch)

Prof John McDonald (Curtin)

Bill Sashegyi (CCI)

Keith Spence (Woodside Energy/APEA)

Paul Dowd (Normandy Mining)

Dr Tony Bagshaw (AMIRA)

Dr Ron Blanks (Metskill Australia)

Prof Patrick Garnett (ECU)

Executive Officer: David Milton

Premier's Science Council: Dr Phil Murray (DoIT)

Rita Saffioti (DPC)

DoIT: Dr John Barker

MPR: Lee Ranford

OOE: Greg Elliot, Dr Mary Dale

AEDB Chair: Frank Daly

AMEC: George Savell, Dr Bryan Smith

DITR: Dr Les Rymer, Marita Sloan

DTF: David Falconer, Mick Jolob

TIAC: John Thompson, Earl White

CME: Tim Shanahan, Irene Ionnakis

WASM: Prof Eric Grimsey

APPEA: James Pearson, Don Sanders

Chevron/Texaco: Paul Clark, Ray Teakle

Alcoa: John Gardner

WMC: Dr Rob La Nauze

Scholarship recipients: Philip Heckley (WASM)

Dr Tom Ridsdill-Smith (UWA)