



# GEODYNAMICS

LIMITED

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P O W E R F R O M T H E E A R T H

P R O S P E C T U S

AN OFFER OF 23,000,000 SHARES AT AN OFFER PRICE OF \$0.50 PER SHARE TO RAISE \$11,500,000  
WITH A PROVISION FOR OVERSUBSCRIPTIONS OF UP TO 8,000,000 SHARES ALSO AT \$0.50 PER SHARE

Brokers to the Offer:  
ABN AMRO Morgans Limited  
Tolhurst Noall Limited

This is an important document which should be read in its entirety. If, after reading this Prospectus you have any questions, you should contact your stockbroker, accountant or independent financial advisor.

# Geodynamics Limited

ABN 55 095 006 090

## Supplementary Prospectus

### Statutory information

This document is a Supplementary Prospectus which must be read together with a prospectus issued by Geodynamics Limited (the Company) dated 6 August 2002 (the Prospectus).

This document is dated 30 August 2002 and was lodged with the ASIC on that date. The ASIC takes no responsibility as to the contents of this Supplementary Prospectus. Terms used in this document have the same meaning as those expressions have in the Prospectus.

### AusIndustry R&D START Grant

As disclosed in the Prospectus in particular in section 9.6 on page 97, the Company has been approved for a grant under the Industry Research and Development Board's (AusIndustry) R&D START program.

Under the grant, the Company has access to funding of 30% of eligible expenditure up to a maximum of \$5,000,000. A condition of the grant is that by 31 August 2002, the Company must demonstrate that it has at least \$10,000,000 in its account as a result of an initial public offering.

### Extension of closing date

As at 4.00pm on the date of this document, the Directors believe that the Company has received applications for shares and commitments for shares which satisfy the minimum subscription. On this basis the Directors have resolved to extend the closing date of the Offer to 5pm on Thursday 5 September 2002 to enable these applications to be received and processed by the Company given the Offer is not underwritten.

The Directors believe that the application monies and commitments held will satisfy the funding condition of the Company's R&D START Grant and the Company is now seeking confirmation from AusIndustry that subject to achieving the minimum subscription under the Prospectus and an ASX listing on close of the Offer, the funding condition will be satisfied.

### Authorisation

This Supplementary Prospectus is authorised by the Company and is lodged with ASIC pursuant to section 718 of the Corporations Act 2001. The Directors have consented to the lodgement of this Supplementary Prospectus in the terms of section 720 of the Corporations Act 2001.



**Doone Wyborn**  
Director

# Corporate Directory

## BOARD OF DIRECTORS

Mr Martin Albrecht AC	–	Chairman
Dr Bertus de Graaf	–	Managing Director
Dr Doone Wyborn	–	Executive Director
Dr Prame Chopra	–	Non-Executive Director
Mr Robert Flew	–	Non-Executive Director
Mr Neil Galwey OAM	–	Non-Executive Director

## REGISTERED OFFICE

Level 2, 349 Coronation Drive  
MILTON QLD 4064

Telephone: (07) 3876 8955  
Facsimile: (07) 3876 8966  
Internet: [www.geodynamics.com.au](http://www.geodynamics.com.au)  
Email: [info@geodynamics.com.au](mailto:info@geodynamics.com.au)

## POSTAL ADDRESS

PO Box 2046  
MILTON QLD 4064

## COMPANY SECRETARY

Paul Frederiks

## AUDITORS AND INDEPENDENT ACCOUNTANT

Ernst & Young  
Level 5, Waterfront Place  
1 Eagle Street  
BRISBANE QLD 4000

## INDEPENDENT EXPLORATION TITLES REPORT

Hetherington Exploration and Mining Title Services Pty Ltd  
First Floor  
503 Willoughby Road  
WILLOUGHBY NSW 2068

## INDEPENDENT GEOLOGY AND POTENTIAL RESOURCES REPORT

Emeritus Professor RWR Rutland AO, FTSE  
11/9 Jardine Street  
KINGSTON ACT 2604

## INDEPENDENT TECHNICAL REPORT ON UNDERGROUND HEAT EXCHANGER STIMULATION

Professor H. Niitsuma  
Department of Geoscience and Technology  
Graduate School of Engineering  
Tohoku University  
Aoba-ku  
Sendai, 980-77 JAPAN

## SOLICITORS

Phillips Fox  
Level 29  
Waterfront Place  
1 Eagle Street  
BRISBANE QLD 4000

## BROKERS TO THE OFFER

ABN AMRO Morgans Limited  
Riverside Centre  
123 Eagle Street  
BRISBANE QLD 4000

Tolhurst Noall Limited  
Level 29  
35 Collins Street  
MELBOURNE VIC 3000

## CORPORATE ADVISOR

Phillip Hutchings  
Wycliffe Pty Ltd  
Level 2 121 Logan Road  
Woolloongabba QLD 4102

## SHARE REGISTRY

Computershare Investor Services Pty Limited  
Level 27, Central Plaza One  
345 Queen Street  
BRISBANE QLD 4000

## INDEPENDENT REVIEWS ON ECONOMIC MODELLING STUDY

Sinclair Knight Merz  
25 Teed Street  
Newmarket  
AUCKLAND NEW ZEALAND

Howard J Herzog  
Principal Research Engineer  
Laboratory for Energy and the Environment  
Massachusetts Institute of Technology  
1 Amherst Street  
CAMBRIDGE MASSACHUSETTS USA

## NATIVE TITLE REPORT

Phillips Fox  
Level 29  
Waterfront Place  
1 Eagle Street  
BRISBANE QLD 4000

Energy is and will remain the largest business on Earth. The industry is undergoing major changes as the world grapples with climate change, pollution, the dependence on fossil fuels and the need for renewable energy.

Hot Dry Rock (HDR) geothermal energy is a renewable form of energy. Geodynamics has secured the rights to a world-class high-grade HDR geothermal resource with the potential to supply large base-loads of electricity.

# Important Dates

Offer Opening Date	13 August 2002
Offer Closing Date	30 August 2002
Expected date of quotation of Shares on ASX	12 September 2002

**Note:** These dates are indicative only and are subject to change. The Directors reserve the right to vary the dates and times of the Offer without prior notice, which may have a consequential effect on other dates. The decision to grant official quotation and the date of quotation of the Shares on ASX is subject to the determination and at the discretion of ASX. Applicants are encouraged to submit their applications as soon as possible.

## Offer Statistics\*

Offer Price per Share	\$0.50
Minimum number of Shares offered under this Prospectus	23 million
Oversubscription Shares offered	8 million
Minimum amount to be raised under the Offer	\$11.5 million
Maximum amount to be raised assuming oversubscriptions	\$15.5 million
Minimum number of Issued Shares on listing	32,717,295
Maximum number of Issued Shares on listing	40,717,295

\* These statistics do not include details of Options issued. For further details as to the capital structure see Section 2.2.

## Important Notice

This Prospectus is dated 6 August 2002. A copy of this Prospectus was lodged with the Australian Securities and Investments Commission (ASIC) on 6 August 2002. ASIC and the Australian Stock Exchange (ASX) take no responsibility for the contents of this Prospectus or the merits of the Offer.

No securities will be allotted or issued on the basis of this Prospectus later than 13 months after the date of this Prospectus. The Company will apply to ASX within 7 days after the date of this Prospectus for admission to the Official List and for official quotation by ASX of the Shares offered by this Prospectus.

This Prospectus contains the Application Form which Applicants must complete in making an Application for Shares. Please refer to Section 2.5 for instructions on how to make an Application for Shares.

Applicants should read this Prospectus in its entirety before deciding to apply for Shares. If, after reading this Prospectus, Applicants have any questions as to how to deal with this Prospectus, they should contact a professional adviser.

**The Shares, the subject of this Prospectus, should be considered high risk. Please refer to Section 8 for details relating to risk factors.**

The distribution of this Prospectus in jurisdictions outside Australia may be restricted by law and persons who come into possession of this Prospectus should seek advice on, and observe any such restrictions. Any failure to comply with such restrictions may constitute a violation of applicable securities laws. This Prospectus does not constitute an offer in any jurisdiction where, or to any person to whom, it would not be lawful to make such an Offer or to issue this Prospectus.

No person is authorised to give any information or to make any representation in connection with the Offer which is not contained in this Prospectus. Any information or representation not contained in this Prospectus may not be relied on as having been authorised by the Company or its Directors.

The assets depicted in photographs in this Prospectus are not assets of the Company unless otherwise stated.

This Prospectus is available in electronic form on the Company's website at [www.geodynamics.com.au](http://www.geodynamics.com.au). The Offer under this Prospectus is only available to persons receiving the electronic copy of the Prospectus in Australia. Any person receiving this Prospectus electronically will be sent a paper copy of the Prospectus (and attached Application Form) by the Company free of charge on request during the period of the Offer.

Please refer to the Glossary in Section 12 for terms and abbreviations used in parts of this Prospectus.

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# Letter from the Chairman

## Dear Investor,

On behalf of the Board, I am pleased to invite you to become a shareholder of Geodynamics Limited.

The energy industry is undergoing major changes as the world grapples with greenhouse gas emissions and climate change, our dependence on fossil fuels and the need for renewable clean energy. Although the world has not yet agreed on a unified response to these challenges, there are clear indications that the indirect costs of carbon emissions from fossil fuels will have to be faced in the near future.

Geodynamics is well placed to benefit from the changing global circumstances. Hot Dry Rock (HDR) geothermal energy is a renewable form of energy with Zero emissions and the capacity to supply base-load electricity to customers, 24 hours per day. The Commonwealth Government has recognised this with the inclusion of HDR as a qualifying source for financial incentives available under the *Renewable Energy (Electricity) Act 2000*.

Further, the State Government of South Australia has provided, a new class of resource tenure designed to promote the development of that State's world-class HDR resources. Under this pioneering legislation, Geodynamics Limited has secured the rights to two Geothermal Exploration Licences to explore for geothermal energy in areas which have the potential to yield the thermal energy equivalent of 50 billion barrels of oil or 10.3 billion tonnes of coal.

Geodynamics' plans are unashamedly ambitious. Our overall goal is to deliver large-scale base-load electricity supply into the national grid from a Zero emission renewable energy source.

Our aims are underpinned by the recent acceleration in HDR electricity research and development overseas. Recent developments overseas, particularly in France, have shown that existing know-how from the petroleum industry can be deployed to access thermal energy from HDR which can be converted into electrical energy using conventional binary geothermal power plants.

These plans are not without risks and I encourage intending investors to read the Investment Risks section later in this Prospectus to appreciate the types of risk an investment in Geodynamics may carry.

6 August 2002

Geodynamics has a three stage business plan which is described in this Prospectus.

Stage One involves the development of a two well HDR circulation system in the Cooper Basin, South Australia to demonstrate the economic extraction of HDR geothermal energy and is expected to be completed within 18 months of listing on ASX.

Part of the funding for Stage One is expected to be provided by the Commonwealth Government under a conditional "R&D START" Grant of up to \$5 million. The remaining funds required for Stage One are being raised under this Prospectus.

The management team at Geodynamics comprises HDR geothermal expertise in combination with extensive corporate and project development experience. I believe that Geodynamics has the people with the vision, expertise and persistence to complete our plans.

This Offer is for a minimum amount of \$11.5 million, together with a provision for oversubscriptions of \$4 million. You will see that approximately \$7.8 million has already been secured in commitments to apply for Shares under this Offer from Pre-IPO Investors.

On behalf of the Board, I commend the Offer to you and encourage you to read the Prospectus fully. I look forward to welcoming you as an investor.

Yours sincerely



**Martin Albrecht AC**  
Chairman





# Investment Highlights



## Our Vision

Geodynamics aims to become the largest renewable energy producer in Australia by developing emission free, base-load electricity generation from known Hot Dry Rock (HDR) geothermal resources.

## Our Resource

- The Company has secured a world-class geothermal resource in the basement granites of the Cooper Basin in South Australia, which at depths of less than 5km could yield the thermal energy equivalent of 50 billion barrels of oil or 10.3 billion tonnes of coal. This is the hottest known region on Earth outside volcanic terrains.
- The geothermal resource potential was established by previous oil and gas industry drilling and as such Geodynamics directly benefits from \$15 million to \$25 million of exploration dollars already spent by others.
- Expected temperatures reaching 290°C at 5km depth.

## Known Technology

- The known, world-class geothermal resource can be accessed by standard oil well drilling technology. The heat will be extracted by circulating water in an underground heat exchanger, engineered using hydraulic stimulation techniques as developed by the oil industry.

## Uniquely positioned in the renewable energy industry sector for the potential supply of emission free base-load electricity

- More than US\$500 million has been invested in HDR geothermal research and development worldwide, and this has now reached the stage of commercialisation. An international consortium has committed to build the first HDR power station at Soultz in north eastern France.
- The heat extracted by circulating water is converted to electricity using standard binary geothermal power plants, which are operational throughout the world.
- Geodynamics has engaged the technical expertise of CSIRO and The Australian National University, and also has a network of overseas experts.
- Both heat extraction and electricity generation are conducted in closed loop systems with Zero emissions to the atmosphere.

### The Economic Potential

- Studies as reviewed by independent experts have shown that HDR geothermal electricity can be generated at a total cost of \$40 to \$62 per MWh depending on scale.

This is highly competitive with other forms of renewable energy generation such as wind, biomass, hydro and solar, with the added advantage of being capable of carrying base-loads.

- A Memorandum of Understanding has been entered into with Santos Limited, which is expected to lead to the supply of electricity from the demonstration plant to the local Moomba gas processing plant.
- Being emission free, HDR geothermal energy generation can directly benefit from the economic incentives created by the Renewable Energy (Electricity) Act 2000. Electricity produced will benefit from tradeable Renewable Energy Certificates (REC's) currently trading at \$35 - \$40 per MWh. This is on top of the wholesale prices which can be earned from selling electricity. In 2000-2001 the average annual wholesale prices for electricity were \$57.33/MWh in South Australia, \$38.36/MWh in New South Wales and \$45.39 in Victoria.

### Our Business Plan

Geodynamics' business plan is based on the development of the known HDR geothermal resource in the Cooper Basin as follows:

#### Stage 1: Proof of Concept:

Develop an underground heat exchanger and produce 20MWt of thermal energy from a two well circulation test. Drilling of the first well is planned to commence within 2 months of listing. Stage 1 should be completed in the first quarter of 2004.

**Stage 2:** Complete underground heat exchanger, drill third well, and install an off-the-shelf, binary geothermal plant to produce 13MWe of electricity for proposed sale to the nearby Moomba gas processing plant. Stage 2 should be completed within two years of Stage 1.

**Stage 3:** Expand production to large-scale commercial HDR geothermal power generation (275MWe) for long term sale of emission free electricity to the national electricity grid.

There is adequate thermal energy within the Cooper Basin HDR resource to power much larger geothermal power stations than 275 MWe. Geodynamics' long term goal is to become the largest renewable energy producer in Australia by the development of several stations of this size or larger.

### **Strong Board and Management**

- Mr Martin Albrecht AC, Chairman and formerly Managing Director of Thiess Pty Ltd, one of Australia's largest engineering and construction companies, is Chairman of Geodynamics.
- The Managing Director of Geodynamics, Dr. Bertus de Graaf, is formerly Managing Director and Chief Executive Officer of Ross Mining NL, a successful developer of four gold mines.
- Dr Doone Wyborn and Dr Prame Chopra, directors, are recognised as leading researchers in the field of HDR geothermal energy.
- Other directors are Mr Neil Galwey, formerly Queensland Electricity Commissioner and Mr Bob Flew, formerly Company Secretary and Vice President Investor Relations of BHP.
- Paul Frederiks, Company Secretary, has extensive experience in public company and secretarial management in the resources sector.

### **Technical and Expert Support**

Through the relationship with Metasource Pty Ltd (Metasource), the Petroleum Division of the CSIRO and The Australian National University (ANU), Geodynamics will have access to experience and scientific expertise in oil well technology and hydraulic stimulation for the development and testing of underground heat exchangers as well as access to expertise on electricity and renewable energy markets.

Metasource will be nominating one Director to our Board following listing on the ASX.

# About HDR Geothermal Energy

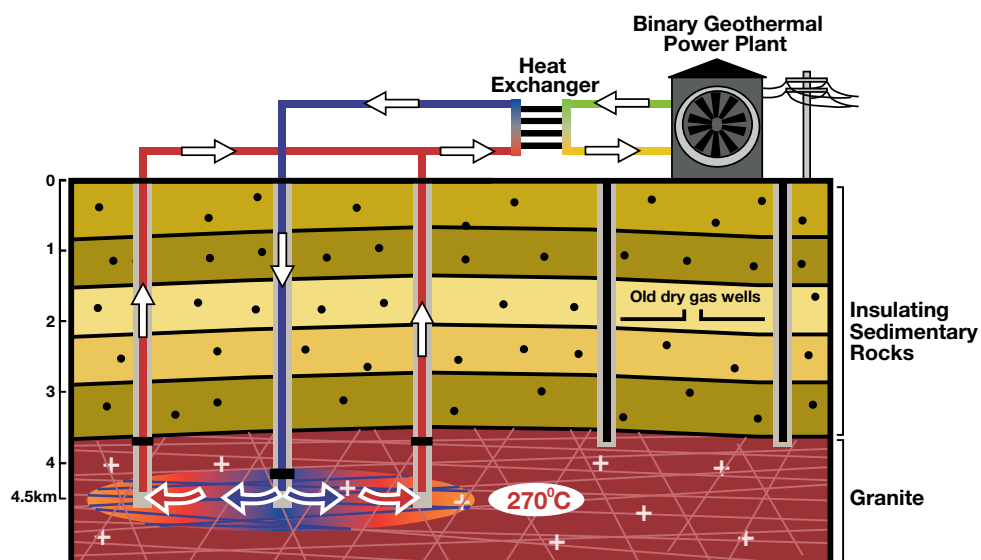
“Geothermal Energy” means heat (“thermal”) from within the Earth’s (“Geo”) crust.

**Hot Dry Rocks (“HDR”)** in the Australian context are buried high heat production granites (>200°C) located at a depth of 3000m or more.

“**HDR Geothermal Energy Generation**” utilises the same equipment and skills that were developed for the oil industry, such as drilling and “**hydraulic stimulation**”. By circulating water through an “**underground heat exchanger**” in hot granites, super-heated water is produced. Converting this heat to electricity relies on the use of a standard “**binary geothermal power plant**”.

**Hydraulic stimulation** relies on the opening of existing fractures and joints, (which are normally present in a granite), by means of high hydraulic pressures in the bottom part of a geothermal well. Tectonic forces within the Earth’s crust then lock small interconnected voids and openings in the granite into place. The interconnected openings and voids constitute the **underground heat exchanger** (not unlike an underground radiator).

In a “**Binary Geothermal Power plant**” super heated water (>200°C) from a production well is used to boil an organic liquid with a low boiling point (not unlike liquids used in air conditioners and fridges) to produce vapour. The water is cooled by this process and is then returned back into the HDR reservoir for reheating via an injection well. It is never allowed to boil. The organic vapour goes through turbines to generate electricity and the vapour is condensed back to liquid and circulated to contact more hot water. The word “binary” is used because both water and the low boiling point liquid are used. By circulating the water and the organic liquid in separate closed loops, there are **Zero emissions** to the atmosphere.



Schematic diagram of 3 well HDR geothermal power station. The hot granite needs an insulating blanket of sedimentary rocks at least 3km in thickness.

Geothermal energy - heat is our resource

## Heat from the Earth

Unlike fossil fuels, the Earth's heat is continually regenerating naturally

**Investment  
Summary**



**Section 01**



# Investment Summary

## 1.1 Important note

This section is intended to be a summary only and should be read in conjunction with the more detailed information appearing elsewhere in the Prospectus. Applicants should read this document in its entirety and consult their professional advisors before deciding to apply for Shares.

## 1.2 Geodynamics Limited ("Geodynamics")

The Company was registered on 7 November 2000 to focus solely on the development of renewable geothermal energy from Hot Dry Rocks ("HDR geothermal energy"). The objective was to benefit commercially from the development of known HDR geothermal resources in Australia. This became possible following enabling State legislation first in New South Wales and then in South Australia that secured the rights to HDR geothermal resources and the introduction of financial incentives stemming from the Renewable Energy (Electricity) Act 2000 (Cth).

HDR geothermal energy generation is the only known renewable form of energy (other than large scale hydro electric) with the capacity to supply high base-loads of electricity with Zero emissions.

Since its formation, the Company has conducted studies and exploration to select an optimal site for the development of an HDR geothermal commercial demonstration plant. In May 2001, the Company completed the gross raising of \$1.1 million in seed capital.

In December 2001, the Commonwealth Industry Research and Development (IR&D) Board approved the Company's application for funding under the R&D START program. The funding is for the "Proof of Concept" research and development component of an underground heat exchanger including the execution of a long term circulation test at the Company's Cooper Basin Project. Under the grant, the Company has access to funding for 30% of eligible expenditure up to a maximum of \$5 million. The funding expected to be provided under the grant will represent approximately 30% of the total cost of the two well HDR circulation system proposed under the Cooper Basin Project – see section 4.9 for further details of the Cooper Basin Project. For further details of the "R&D START" Grant, including the conditions of the grant, refer to Section 9.6 of this Prospectus.

## Potential base-load electricity generation using environmentally sustainable renewable energy

The Company has also acquired a number of HDR geothermal exploration tenements, including a world-class, high-grade HDR geothermal resource in the Cooper Basin, South Australia.

The Cooper Basin Project will be the principal focus for the Company in the short and medium term – see Sections 1.5 and 4.9 for further details.

The HDR geothermal assets in the Cooper Basin with the highest potential have now been consolidated into the Company. CSIRO has agreed to provide technical assistance to the Company for its HDR geothermal development.

### 1.3 Management

The Directors and management team collectively have internationally recognised expertise on HDR geothermal energy and comprehensive experience in project development, production management and the administration of public companies.

### 1.4 Access to Scientific and Engineering Expertise

Geodynamics will have access to the HDR geothermal technical support of CSIRO under a technical services agreement including the assistance of an engineer seconded to work with the Company.

Geodynamics also has the benefit of access to HDR geothermal research programs conducted at the ANU by one of its Directors, Dr. Prame Chopra (Reader in Geophysics). ANU was a seed capital provider to the Company in 2001 and has agreed to subscribe for Shares under this Offer that will give it an approximately 8% equity interest in the Company after the completion of the Offer.

Geodynamics has also established close links with HDR experts in France, (The European Union funded Soultz Project), Japan (Tohoku University, NEDO and CRIEPI), the UK (ABB) and the United States (Los Alamos National Laboratory and MIT).



Geothermal well-head



Our objective is to be an emission free base-load electricity generator using renewable HDR geothermal energy.

### 1.5 Objectives of the Company

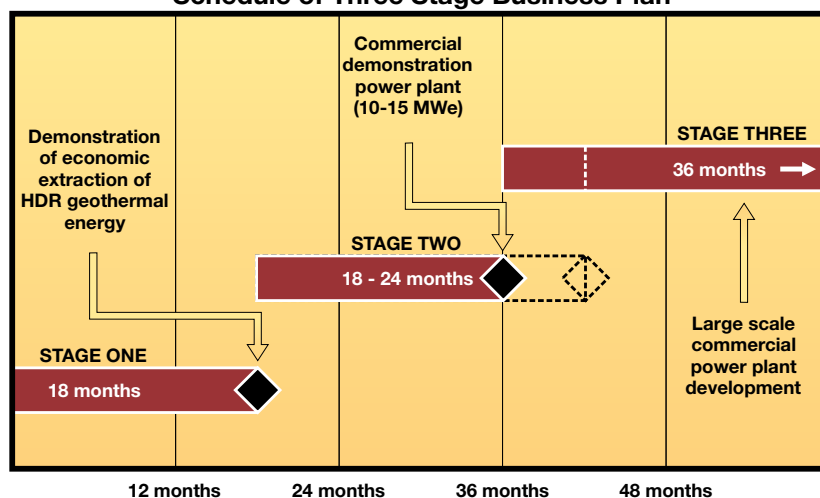
To be an emission free base-load electricity generator using renewable HDR geothermal energy.

The Company's overall objective is to create wealth for its shareholders by becoming a large scale (275 - 1000MWe) base-load electricity generator using emission free renewable HDR geothermal energy from known high heat production granites.

To underpin this aim, Geodynamics has secured the rights to extract heat from what can be classified as a world-class HDR geothermal resource in South Australia.

This resource contains high heat production granites which at depths of less than 5km could yield the thermal energy equivalent of 50 billion barrels of oil or 10.3 billion tonnes of hard coal. This is more than 20 times larger than the known Australian oil reserves and it is equal to approximately 40 years of current Australian black coal production (260 million tonnes).

**Schedule of Three Stage Business Plan**



High heat production granites with the thermal energy equivalent to 50 billion barrels of oil

To reach its overall objective, the Company has developed a three stage business plan comprising:

**Stage One**  
**“Proof of Concept” - Development of a Two Well HDR Circulation System to produce 20 MWt of thermal energy**

Developing an underground heat exchanger by hydraulic stimulation at a depth of approximately 4400m in the Cooper Basin, South Australia, to demonstrate the economic extraction of HDR geothermal energy. Establishment of this underground heat exchanger will open up the full potential of the world-class, high-grade HDR geothermal resource in the Cooper Basin. In parallel with the above activities, the Company will continue to explore the HDR resource potential of tenements in Hunter Valley, NSW, and pursue its application for a permit to explore for geothermal energy in SW Queensland.

**Stage Two**  
**Installation of a 13 MWe Commercial Demonstration Plant**

Developing and constructing a binary geothermal commercial demonstration power plant with an output of 10-15MWe at an estimated total cost of \$62/MWh by enlarging and deepening the underground heat exchanger developed in Stage One, and drilling a second production well.

An economic feasibility study has indicated that electricity from renewable HDR geothermal energy has the potential to be produced at a profit. A Memorandum of Understanding has been entered into with Santos Limited, which is expected to lead to the supply of electricity to the local Moomba gas processing plant. Sales of electricity will benefit from financial incentives established by the Renewable Energy (Electricity) Act 2000 (so called Renewable Energy Certificates or “RECs”).

**Stage Three**  
**275 MWe Commercial Plant**

Commercialisation through scaling up of underground heat exchanger development and the subsequent increase of HDR geothermal energy extraction and electricity generation for sale to the national grid. The degree of scaling up will be based upon a full feasibility study for sub-surface and power station development and export of electricity from the Cooper Basin tenement to the national grid. Preliminary studies indicate total generating costs of \$40/MWh and transmission costs of \$5/MWh to \$10/MWh can be achieved.

For further details of the work which will be done during each of these Stages, see Section 4.9.

**Funding strategy**

The funds raised by this Offer, in conjunction with the R&D START Grant from the Commonwealth Government of up to \$5 million, will permit the completion of Stage One only (see Section 4.10).

For Stage Two the Directors will investigate the opportunities of funding the capital cost of establishing the small scale commercial demonstration plant (expected to cost in the order of \$30 million) from sources other than equity.

For Stage Three, significant funding will be required for the full commercialisation of the Cooper Basin resource through the construction of a major power plant.

Funding arrangements at the appropriate time will be required and the Directors anticipate this funding will be sourced from a mixture of debt and equity. The introduction of appropriate joint venture partner(s) is also an option available to the Company to assist in the funding of a major commercialisation project.



Geodynamics has secured the rights to extract heat from what can be classified as a world-class HDR geothermal resource in South Australia.

### 1.6 Tenements and HDR Geothermal Resources

Geodynamics has secured several HDR geothermal tenements in Australia, namely:

#### South Australia

Innamincka (GEL 98) and Bulyeroo (GEL 97) in the Cooper Basin are both ultimately 100% owned by Geodynamics. These adjoining tenements have a combined surface area of nearly 1000 square kilometres.

On the basis of existing oil exploration wells and extensive knowledge from previous seismic and gravity surveys, the tenements are known to contain high-grade HDR geothermal resources, with temperatures estimated to reach approximately 290°C at 5000m depths. These energy resources are accessible by conventional oil well drilling technology. The area is unique and can be classified as the hottest known locality on Earth outside volcanic centres.

This world-class, high-grade HDR geothermal resource has the potential to generate many thousands of megawatts (MWe) of renewable, emission free electricity. By comparison, a typical large scale coal fired power station in Australia generates 1000MWe.

#### New South Wales

Muswellbrook (EL 5560) and Bulga (EL 5886) in the Hunter Valley, both 100% owned by Geodynamics. The combined surface area of these two exploration tenements totals 490 square kilometres. The area is characterised by high geothermal gradients (>50°C per 1000m) and a discernable gravity low, pointing to the possible presence of a granite heat source at an acceptable depth. Pacific Power (NSW), The Australian National University and the Australian Greenhouse Office have spent a total of \$2 million on geothermal exploration on the Muswellbrook licence, including seismic and gravity surveys, and a 1947m deep pilot hole. Geodynamics has conducted seismic and gravity surveys on the Bulga Licence. Further exploration work is required to determine the HDR geothermal resource potential of these areas.

#### Further applications to explore for geothermal energy

In Queensland, the Company has applied for a permit to explore for geothermal energy in the Eromanga Basin, in south west Queensland (Nockatunga application (EPM 13583)).

Previous oil well drilling exploration has established this region to be associated with high geothermal gradients.

Location of Geodynamics' HDR geothermal tenements



Further studies and exploration is required to determine the HDR geothermal resource potential.

The Company's application is currently under consideration by the Queensland Department of Natural Resources. The Department has indicated that there may need to be changes to legislation in Queensland before the Company's application can be granted.

For details of the Company's tenements and HDR geothermal resources, intending investors are referred to:

- Section 4.12  
Directors' Review
- Section 5.1  
Independent Exploration Titles Report
- Section 5.2  
Native Title Report
- Section 5.3  
Independent Geology and Potential Resources Report

### 1.7 Economic Modelling Study

The Company has carried out an economic feasibility study for an HDR geothermal pilot plant in the Cooper Basin in collaboration with the Laboratory for Energy and the Environment of Massachusetts Institute of Technology (MIT), USA. This study was based on extracting heat from an underground heat exchanger with a volume of one cubic kilometre, producing 13MWe at an estimated **operating cost of \$19.40 per MWh** and a **total estimated cost of \$61.80 per MWh** including all capital. Such costs are expected to make a commercial demonstration power plant economically viable in its own right, particularly in view of the legislated incentives for renewable energy.

The study uses a model developed by MIT. MIT has found that the inputs to the model are appropriate and that the results produced are consistent with those input values.

Subsequently, the results have been independently reviewed by the New Zealand office of Sinclair Knight Merz (SKM) (see Sections 5.5 and 5.6 for full copies of the reports).

This is only an initial step in our overall plan to develop a large scale power plant generating hundreds of megawatts of electricity. Recent engineering studies on a 300MWe development have indicated that total electricity costs (including all capital) are \$39/MWh, excluding transmission costs. Total capital costs are \$2.5 million per MWe installed. This compares favourably with other forms of renewable energy generation.



The Company is fortunate to have the technical support of CSIRO's Division of Petroleum and Pre-IPO Investors Metasource and The Australian National University.

### 1.8 Pre-IPO Investors

The following investors have committed to subscribe for Shares as part of this Offer.

Name	No Shares
CVC REEF Limited	2,058,186
The Australian National University	2,058,186
Other existing shareholders	1,158,000
Metasource Pty Ltd	10,443,392
<b>TOTAL</b>	<b>15,717,764</b>

The terms on which these investors have agreed to subscribe for Shares are set out in Sections 9.7 - 9.8.

The Company is fortunate to have the technical support of CSIRO's Division of Petroleum and Pre-IPO Investors Metasource and The Australian National University. Through these channels the Company will have access to oil well engineering and technology, scientific and technological expertise related to hydraulic stimulation for the development and testing of underground heat exchangers as well as access to expertise on electricity and renewable energy markets.

### 1.9 Purpose of the Offer

The purpose of the Offer is to raise funds:

- To carry out Stage One of the Company's business plan, namely:
  - to demonstrate the economic extraction of HDR geothermal energy by the production of 20 MWt of geothermal energy from the HDR resources in the Cooper Basin, South Australia by developing a two well HDR circulation system (see Section 4.9); and
- to carry out further exploration and resource evaluation in the Hunter Valley in NSW and Eromanga Basin in Queensland;
- to carry out strategic planning for Stages Two and Three of the Company's business plan;
- to meet the expenses of the Offer and the administration costs of the Company; and
- to enable the Company to apply for admission to the Official List of ASX and to obtain the grant of quotation of its Shares.

On the successful completion of the Offer, the Directors believe that the Company will have sufficient working capital to carry out its objectives stated above.

## Access to oil well engineering and scientific and technological expertise

### 1.10 Source and Application of Funds - Minimum Subscription

If the minimum subscription of 23,000,000 Shares is achieved, the proceeds of the Offer will be applied in accordance with the table set out below.

SOURCE OF FUNDS		APPLICATION OF FUNDS	
	\$'000		\$'000
Existing Cash Balance <sup>(1)</sup>	137	Cooper Basin Project	13,350
Equity from the IPO		Hunter Valley Project	30
• Pre-IPO Offer <sup>(5)</sup>	7,859	Queensland Project	20
• Public Offer	3,641	Expenses of the Offer <sup>(6)</sup>	1,258
R&D START Grant <sup>(4)</sup>	4,075	Corporate Costs	1,112
Interest Income <sup>(2)</sup>	317	Working Capital <sup>(3)</sup>	259
	<b>16,029</b>		<b>16,029</b>

The Directors believe that achieving the minimum subscription will provide the Company with sufficient funds to carry out Stage One of its business plan described in this Prospectus.

### 1.11 Source and Application of Funds - Maximum Subscription

If the oversubscription allocation is fully subscribed, it is intended that the proceeds of the Offer will be applied in accordance with the table set out below.

These extra proceeds will largely be directed toward the Cooper Basin Project in expanding the heat exchanger (see Sections 4.9 and 4.11).

SOURCE OF FUNDS		APPLICATION OF FUNDS	
	\$'000		\$'000
Existing Cash Balance <sup>(1)</sup>	137	Cooper Basin Project	17,690
Equity from the IPO		Hunter Valley Project	250
• Pre-IPO Offer <sup>(5)</sup>	7,859	Queensland Project	250
• Public Offer	7,641	Expenses of the Offer <sup>(7)</sup>	1,478
R&D START Grant <sup>(4)</sup>	5,000	Corporate Costs	1,312
Interest Income <sup>(2)</sup>	495	Working Capital <sup>(3)</sup>	152
	<b>21,132</b>		<b>21,132</b>

### 1.12 Risks of Investing

An investment in the Company involves a high degree of risk. These risks are outlined in Section 8 of this Prospectus. A key risk is the ability of the Company to develop an underground heat exchanger in the HDR geothermal resource in the Cooper Basin and the subsequent extraction of heat from it by circulating waters.

### Notes:

- (1) Opening cash balance at 1 July 2002.
- (2) Forecast interest income on surplus funds held on deposit for the period through to 30 June 2004.
- (3) Working Capital reserve, comprising the anticipated closing cash balance on hand at the completion of the Stage One program in early 2004.
- (4) R&D START Grant – There are two conditions that the Company needs to satisfy in order to receive this grant. The first condition relates to the time which the Company must have received \$10 million into its account as a result of the IPO. The date is currently set at 31 August 2002. The second condition is that the Company must provide written confirmation that there are no native title issues impeding the proposed project. This condition was satisfied on 4 June 2002.
- (5) Commitments of approximately \$7.8M have been entered into by the Company under the Pre-IPO Offer – see Sections 9.7 - 9.8.
- (6) Total estimated costs of the Offer are \$1,530,000 (refer Section 10.10), including prospectus preparation costs and Pre-IPO rebates. Costs of \$272,000 are estimated to have been incurred by 30 June 2002 with the balance of \$1,258,000 estimated to be incurred in the 2003 financial year.
- (7) Total estimated costs of the Offer are \$1,750,000 (refer Section 10.10), including prospectus preparation costs and Pre-IPO rebates. Costs of \$272,000 are estimated to have been incurred by 30 June 2002 with the balance of \$1,478,000 estimated to be incurred in the 2003 financial year.

Heat is trapped by overlying layers of rocks

## Stored in buried Granites

Accessed through the granites  
natural fracture system





**Details  
of the Offer**

**Section 02**



All Shares offered under this Prospectus will represent 70.3% of the total issued share capital of the Company on an undiluted basis following completion of the Offer.

## Details of the Offer

### 2.1 The Offer

By this Prospectus, the Company is offering investors the opportunity to subscribe for 23,000,000 Shares, each at \$0.50 per Share, payable in full on Application, to raise \$11,500,000. The Offer is not underwritten.

The Offer is being made in two parts:

1. The offer of 15,717,764 Shares to Pre-IPO Investors at \$0.50 each to raise \$7,858,882 (Pre-IPO Offer) (The Company has agreed to provide certain rebates and early commitment fees to the Pre-IPO Investors - see Sections 9.7 - 9.8 for further details); and
2. A general offer of 7,282,236 Shares at \$0.50 each to raise \$3,641,118 (Public Offer).

Details of the Pre-IPO Investors are set out in Section 1.8.

All Shares offered under this Prospectus will rank equally with all existing Shares on issue.

Oversubscriptions of up to 8,000,000 Shares at the Offer price of \$0.50 per Share will be accepted.

### 2.2 Proforma Capital Structure

The capital structure after completion of the Offer will be as follows:

	Minimum subscription (\$11.5m)		Minimum subscription plus oversubscriptions (\$15.5m)	
	Shares on issue	Paid up capital	Shares on issue	Paid up capital
Total issued and paid up capital prior to the Offer	9,717,295	1,291,938	9,717,295	1,291,938
<b>Fully paid ordinary Shares offered under this Prospectus at \$0.50:</b>				
• Pre-IPO Offer	15,717,764	7,858,882	15,717,764	7,858,882
• Public Offer	7,282,236	3,641,118	15,282,236	7,641,118
<b>Total fully paid ordinary Shares offered under this Prospectus</b>	<b>23,000,000</b>	<b>11,500,000</b>	<b>31,000,000</b>	<b>15,500,000</b>
<b>LESS: Costs of the Offer:</b>				
• Commitment fees and rebates payable on the Pre-IPO Offer		757,000		757,000
• Brokerage and management fees		318,000		538,000
• Other Offer costs		455,000		455,000
<b>Total Costs of the Offer*</b>		<b>1,530,000</b>		<b>1,750,000</b>
<b>Total issued and paid up capital on completion of the Offer</b>	<b>32,717,295</b>	<b>11,261,938</b>	<b>40,717,295</b>	<b>15,041,938</b>

All Shares offered under this **Prospectus** will rank equally with all existing Shares on issue

\* The total expenses connected with the Offer which are payable by the Company, including rebates and early commitment fees on the Pre-IPO Offer, brokerage and management fees payable to the Brokers to the Offer, accounting fees, legal fees, share registry fees, printing costs, public relations costs and other miscellaneous expenses are estimated to be approximately \$1,530,000. Additional brokerage and management fees of up to \$220,000 will be incurred if the oversubscription allowance of 8,000,000 Shares is fully accepted.

In addition to the above, there are 1,240,000 Options on issue. The Options were issued in accordance with the terms of the Directors and Employees Incentive Share & Option Plan which is described in Note 21(B) of the Financial Information Section on page 84 of this Prospectus.

If the minimum subscription is achieved, the Shares offered under this Prospectus will represent 70.3% of the total issued share capital of the Company and if the total provision for oversubscriptions is achieved, the Shares offered under this Prospectus will represent 76.1% of the total issued share capital of the Company.

Following the successful completion of the Offer, the shareholders will be as follows:

Shareholder	\$11.5m Offer		\$11.5m Offer with \$4m Oversubscriptions	
	Shares held	%*	Shares held	%*
Metasource Pty Ltd	10,443,392	31.9	10,443,392	25.6
CVC REEF Limited	2,558,186	7.8	2,558,186	6.3
The Australian National University	2,608,186	8.0	2,608,186	6.4
Other existing shareholders	9,825,295	30.0	9,825,295	24.1
New shareholders	7,282,236	22.3	15,282,236	37.6
<b>TOTAL</b>	<b>32,717,295</b>	<b>100.0</b>	<b>40,717,295</b>	<b>100.0</b>

\* Percentage of total issued Shares on completion of the Offer

## 2.3 Minimum Subscription

The minimum subscription under this Prospectus is 23,000,000 Shares. The Company has received firm commitments to subscribe for 15,717,764 Shares under this Prospectus.

No Shares will be allotted or issued until valid applications for the minimum subscriptions have been received. If the minimum subscription is not achieved within 4 months after the date of issue of this Prospectus the Company will either repay the Application Monies to the Applicants or issue a supplementary or replacement prospectus and allow Applicants one month to withdraw their Application and be repaid their Application Monies.

All Application Monies shall before the allotment pursuant to this Prospectus be held by the Company in trust in a separate bank account until allotment or where applicable, the Application Monies are repaid. This bank account will be established solely for the purpose of depositing Application Monies received. All interest earned on all Application Monies will be retained by the Company.



Subject to ASX granting approval for the Company to be admitted to the Official List, the Shares will be allotted as soon as possible after the Closing Date.

## 2.4 Brokers to the Offer

The Brokers to the Offer are ABN AMRO Morgans Limited and Tolhurst Noall Limited. A management fee of 1.5% of the total amount raised and selling commissions of 4% on publicly issued Shares and Shares issued as oversubscriptions, plus approved out of pocket expenses and GST will be paid to ABN AMRO Morgans Limited and Tolhurst Noall Limited.

At the date of this Prospectus, the Company has received firm commitments to subscribe for \$7,858,882.

## 2.5 Applications

Applications for Shares can only be made on an Application Form which is attached to this Prospectus. Payment for the Shares must be made in full at the Offer Price of \$0.50 per Share. Applications for Shares must be for a minimum of 4,000 Shares and thereafter in multiples of 1,000 Shares.

Applicants should read the instructions on the Application Form before applying for Shares. Completed Application Forms may be lodged at any time after the expiry of the Exposure Period.

Cheques in Australian dollars, must be payable to “Geodynamics Limited – Share Offer” and crossed “*Not Negotiable*”.

Application Forms together with Application Monies must be mailed or delivered to:

ABN AMRO Morgans Limited	Tolhurst Noall Limited	Computershare Investor Services Pty Limited
<i>Street Address:</i> Level 29, Riverside Centre 123 Eagle Street Brisbane QLD 4000	<i>Street Address:</i> Level 29 35 Collins Street Melbourne VIC 3000	<i>Street Address:</i> Level 27, Central Plaza One 345 Queen Street Brisbane QLD 4000
<i>Postal Address:</i> GPO Box 202 Brisbane QLD 4001	<i>Postal Address:</i> GPO Box 1392M Melbourne VIC 3001	<i>Postal Address:</i> GPO Box 523 Brisbane QLD 4001
Tel 07 3334 4888	Tel 03 9242 4000	Tel 07 3237 2100

## Offer sponsored by ABN AMRO Morgans Limited and Tolhurst Noall Limited

### 2.6 Allotment

Subject to ASX granting approval for the Company to be admitted to the Official List, the Shares will be allotted as soon as possible after the Closing Date. An Application constitutes an offer by the Applicant to subscribe for Shares on the terms and subject to the conditions set out in this Prospectus. A binding contract to issue Shares will only be formed when the Application is accepted by the Company. The Directors reserve the right to reject any Application and to allot a lesser number of Shares than applied for. The Directors reserve the right to accept Applications and to issue and allot Shares pursuant to those accepted Applications at the times and in the order as the Directors think fit. If the number of Shares allotted is less than the number applied for, the surplus Application Monies will be refunded to the Applicant within 7 days of the allotment. Interest will not be paid on any refunded Application Monies. The Company also reserves the right not to continue with the Offer at any time prior to the issue and allotment of Shares under this Prospectus.

As required by the Corporations Act, this Prospectus is subject to an Exposure Period of 7 days following lodgement of the Prospectus at the ASIC. That period may be extended by ASIC for a further 7 days.

No Applications will be accepted by the Company during the Exposure Period. Any such form received during the Exposure Period will only be processed (without preference) after the Exposure Period has concluded.

### 2.7 ASX Listing

The Company will apply to ASX by no later than 7 days after the date of closure of this Prospectus, for the Company to be admitted to the Official List and for official quotation of the Shares offered by this Prospectus.

If the Shares are not admitted to quotation on the Official List, within 3 months after the date of this Prospectus, or such longer period as is permitted by the Corporations Act after the date of this Prospectus, then none of the Shares offered by this Prospectus will be allotted or issued. If no allotment or issue is made, all Application Monies for the Shares will be refunded to Applicants as soon as practicable.

### 2.8 Applicants Outside Australia

This Prospectus does not, and is not intended to, constitute an Offer in any place or jurisdiction in which, or to any person to whom, it would not be lawful to make such an Offer or to issue this Prospectus. The distribution of this Prospectus in jurisdictions outside Australia may be restricted by law and persons

who come into possession of this Prospectus should seek advice on and observe any such restrictions. Any failure to comply with such restrictions may constitute a violation of applicable securities laws.

### 2.9 CHESS

The Company will apply to participate in the Clearing House Electronic Subregister System, known as CHESS. CHESS is operated by ASX Settlement and Transfer Corporation Pty Ltd, a wholly owned subsidiary of ASX, in accordance with the Listing Rules and SCH Business Rules.

Under CHESS, a shareholder will not receive a certificate but will receive a statement of their holding in the Company. If a shareholder is broker sponsored, ASX Settlement and Transfer Corporation Pty Ltd will send the shareholder a CHESS statement.

### 2.10 Enquiries Regarding the Offer

If Applicants have any queries about the Offer or how to apply for Shares, please contact:

**ABN AMRO Morgans Limited**

07 3334 4888

**Tolhurst Noall Limited**

03 9242 4000

or your stockbroker, accountant, or financial adviser.

Oil drilling to depths of 5km or more is a well established technology

## Oil technology is our tool

Oil field proven hydraulic fracturing  
opens the natural fracture system  
to form the underground heat  
exchanger



**Directors &  
Senior Management**

**Section 03**



## Profile of Directors & Senior Management

### 3.1 Directors

#### 1. Chairman

##### **Mr Martin Albrecht AC**

*B.Tech (Civil), FTSE, FIE Aust, FAICD, FAIM, DUniv (QUT)*

Until recently, Mr Martin Albrecht was Managing Director of Thiess Pty Ltd, (one of Australia's largest engineering and construction companies) a position he held for more than 15 years. He is now Chairman of Thiess and a director of Leighton Holdings Limited.

Since his retirement he has taken up a number of board positions in companies including Queensland Gas Limited and Portman Limited.

He received his Companion of Australia for services to industry in 2002. He also remains actively involved with various industry organisations.

#### 2. Managing Director

##### **Dr Lambertus de Graaf**

*B.Sc (Hons), Ph.D (Univ. of Bristol, UK), FAusIMM, MGSA*

Dr Bertus de Graaf was the Managing Director and CEO of Ross Mining NL since its incorporation in 1986, until a friendly takeover in mid 2000. During his tenure, the Company developed 4 new gold mines, and gained official recognition for excellence in environmental management and engineering. The Company paid dividends for 7 consecutive years and achieved a market valuation in excess of \$200 million. He was a founding Director of the Australian Gold Council.

Prior to his career with Ross Mining, he was employed for 14 years by the Shell/Billiton Group on various international mineral exploration and resource development assignments in Europe, Africa, South America and Asia as well as in Australia.

#### 3. Executive Director

##### **Dr Doone Wyborn**

*B.Sc (Hons), Ph.D, FAusIMM, MGSA*

Dr Doone Wyborn is an internationally known geoscientist specialising in granitic rocks. He obtained his Ph.D on granite research in 1983, and served more than 25 years with the Bureau of Mineral Resources, Geology & Geophysics and the Australian Geological Survey Organisation, including research in Antarctica and other overseas locations.

He has been championing the potential of HDR geothermal energy for the last 10 years and is recognised as the leading Australian expert authority on this subject. He is a member of the Executive Committee of the International Energy Agency Geothermal Implementing Agreement and has studied HDR geothermal projects in Japan, Europe and the USA.

He is currently a Visiting Fellow at the Department of Geology at The Australian National University (ANU) in Canberra and is Project Manager of a joint Pacific Power and ANU deep drilling geothermal research project in the Hunter Valley, NSW, with partial funding from the Australian Greenhouse Office.

#### 4. Non-Executive Director

##### **Dr Prame Chopra**

*B.Sc (Hons), Ph.D, MGSA, MAGU, MASEG, MIGA, MASC*

Dr Prame Chopra is a Reader in Geophysics at The Australian National University in Canberra. He obtained his Ph.D in rock physics at the ANU in 1980 and has held research appointments at ANU, Cornell University in New York and at the Bureau of Mineral Resources, Geology & Geophysics and the Australian Geological Survey Organisation. He is an internationally recognised researcher of more than 20 years standing with strong collaborative links with key overseas HDR geothermal energy research groups.





He was a Principal Investigator of the Energy Research & Development Corporation-funded project into HDR and Tight Gas in the Cooper Basin, SA. Dr Chopra is currently a Principal Investigator in the ANU - Pacific Power geothermal research project in the Hunter Valley, NSW. In 2000, he was an invited guest of the Japanese New Energy Development Organisation and lectured on HDR geothermal resources in a number of Japanese cities. He is a member of the Australian Science Communicators and was an ABC Science Media Fellow in 2000.

#### 5. Non-Executive Director

##### Mr Robert Flew

*B.Ec (Hons), FAusIMM, FAIM, FAICD*

Mr Robert Flew has extensive board, corporate, financial and general management experience in the national and international resource sector. For fifteen years he held senior management responsibilities at BHP, including business division accountability and financial and other responsibilities. Before his retirement at the end of 1999, he was Company Secretary and Vice President Investor Relations. In the years prior to that he was Group General Manager International and Group General Manager BHP Australia Coal. He is widely experienced in project development and in negotiations with Governments, financial institutions and unions.

Mr Flew is also a director of Thiess Pty Ltd, Zirconium Pty Ltd (Chairman) and Bass Strait Oil Company Ltd. He was formerly a director of Tubemakers Australia Ltd, the inaugural President of the Queensland Mining Council and past Chairman of CQCA and Gregory Joint Ventures, BHP Mitsui Pty Ltd and The World Coal Institute.

#### 6. Non-Executive Director

##### Mr Neil Galwey OAM

*BE, FIE Aust.*

Mr Neil Galwey has an electrical engineering background. He has been Queensland Electricity Commissioner, Chairman of the Snowy Mountain Engineering Corporation, and Director of the Energy Research and Development Corporation and Stanwell Corporation.

He is currently Chairman of CVC REEF Ltd, a venture capital fund established to increase investment in renewable energy technologies. In 1997 he was awarded an OAM for services to Australia's electricity industry, particularly with respect to research and development.

### 3.2 Senior Management

#### 7. Company Secretary and Chief Financial Officer

##### Mr Paul Frederiks

*B.Bus (Acc), FCPA, FCIS*

Mr Paul Frederiks has extensive experience in public company financial and secretarial management with more than 20 years experience in the Australian resources sector. He has an extensive knowledge base in statutory public company reporting, financial modelling and forecasting, treasury management, project financing, insurance and corporate governance.

He held the position of Company Secretary and Chief Financial Officer of Ross Mining NL for over eight years until mid 2000 and now specialises in providing company financial and secretarial services to both listed and unlisted public companies. He is currently Company Secretary of Billabong International Limited and Allens Services Limited as well as numerous subsidiary entities. He has been Company Secretary of Billabong since July 2000 and assisted Billabong in its successful float on the Australian Stock Exchange in August 2000.

He is a Queensland Branch Councillor of Chartered Secretaries Australia (CSA) and currently chairs the Queensland Public Company Discussion Group of CSA.

### 3.3 Additional appointments

As a condition of investment in the Company by Metasource, the Company has agreed to appoint one person nominated by Metasource as a director of the Company. Accordingly, the Company expects to make an additional board appointment after the Offer is completed successfully and the Company lists on ASX.





In a “Binary Geothermal Power plant” super heated water ( $>200^{\circ}\text{C}$ ) from a production well is used to boil an organic liquid with a low boiling point (not unlike liquids used in air conditioners and fridges) to produce vapour

## Water is our agent

By circulating the water and the organic liquid in separate closed loops, there are Zero emissions to the atmosphere



**Directors'  
Review**

**Section 04**



Geodynamics is now poised to develop Australia's first HDR field, the initial step in commercialising HDR on a large scale.

## Directors' Review

The global energy industry is undergoing major changes as the world grapples with climate change, pollution, the dependence on fossil fuels and the need for renewable energy. The focus of industry, governments, consumers and the population at large is now increasingly on greenhouse emission control and moving away from depleting fossil fuels. HDR geothermal energy is a significant step in this direction, offering both a renewable form of electricity production and Zero emissions to the atmosphere. Geodynamics has secured the rights to a world-class high-grade HDR geothermal resource with the potential to supply large base-load electricity long into the future.

Geodynamics is now poised to develop Australia's first HDR field, the initial step in commercialising HDR on a large scale. Geodynamics has already designed the first well (HDR #1) and received tenders from major drilling companies. The Directors plan to commence field operations at Innamincka in South Australia within two months of completion of the IPO.

### 4.1 The Electricity Industry in Australia

Almost three-quarters of Australia's installed electricity capacity of 41,000 MWe is supplied from coal fired generators, with the balance provided mainly from hydro and natural gas. These have been reliable, low cost sources of power for decades, but at a fast growing cost in terms of greenhouse gas emissions.

About 40% of the CO<sub>2</sub> produced from industrial sources can be attributed to fossil fuel power generation. Electricity demand has been growing at 2 to 3% per year, suggesting that at least 4000 MWe and up to 7000 MWe of new electricity supply will be required within the next ten years. Meeting these requirements from conventional fuels alone would be a major challenge, however the added pressure to reduce emissions and dependence on fossil fuels must see the emergence of significant new sources of electricity. The most prominent of these to date has been wind power. Considerable work is also being undertaken on large scale solar, biomass and wave generators. There may be room for all if they can be proven to be economic. However, the greatest impact will come from generators of base-load power (power available 24 hours a day) capable of large scale supply (200 MWe and better). This is where Geodynamics' strategy lies.

Electricity in the Eastern States is largely tied in to the so-called National Grid which connects New South Wales, Queensland, Victoria and South Australia. This grid is administered by the National Electricity Market Management Company Limited and electricity is sold through a network of distributors and retailers. The average annual wholesale price per MWh in 2000/2001 was \$38.36 in New South Wales, \$45.39 in Victoria and \$57.33 in South Australia. It is this Eastern States market which is the target for power produced from Geodynamics' large scale HDR Geothermal Project (Stage 3).

# Energy is the largest business on Earth

## 4.2 Renewable Energy in Australia

The importance of scaling back the use of fossil fuels such as coal to reduce the emission of carbon dioxide (a “greenhouse gas”) is internationally recognised. The Kyoto Forum to reduce carbon dioxide emissions has focussed world attention on the use of fossil fuels and the damaging effect of greenhouse gas emissions on the atmosphere and climate. Australia’s carbon dioxide emissions have increased in recent years to being one of the highest emitters of greenhouse gases per capita in the world.

As recognition of this, the Commonwealth Government of Australia introduced the *Renewable Energy (Electricity) Act 2000* (The “Act”) in 2000. The specific objective of the Act is to encourage additional electricity generation from renewable sources. Electricity produced from HDR geothermal energy is an eligible renewable energy under the Act.

The Act provides incentives for 9,500 GWh (about 1,000 MWe) per year of Australia’s electricity to be supplied from renewable energy sources by 2010.

While this is a valuable start, the Australian target is still well below targets set in Europe (12% by 2010) and USA (10% by 2020). The current 2% Australian target may increase to nearer the US and European levels within the next few years.

Under the Act, accredited renewable power station operators issue and transfer Renewable Energy Certificates (RECs). Financial disincentives have been introduced to require electricity retailers to purchase a nominated proportion (0.24% in 2001) of their electricity from qualifying renewable sources and surrender the corresponding number of RECs each year. If an electricity retailer has a shortfall in meeting the annual target of renewable electricity purchases, it faces a penalty of \$40 for each MWh of shortfall. This penalty is non-tax deductible, which will effectively act as a \$52/MWh (maximum) incentive for new renewable energy projects. Alternatively, a retailer may purchase RECs from another retailer which has a surplus.

The Company has entered into an agreement to negotiate the sale to Metasource of any RECs and other green energy rights

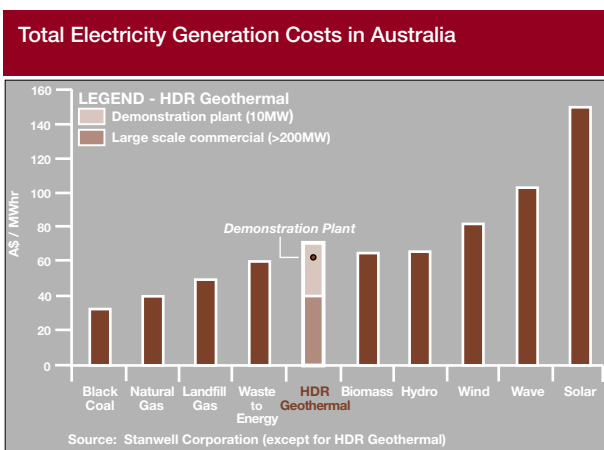
which may arise from the generation of power from the Company’s demonstration plant and first large scale commercial plant (see Section 9.8 for further details).

## 4.3 How Does HDR Differ From Other Renewable Electricity Sources?

Over recent years, many organisations both in Australia and overseas have accelerated the development of electricity from renewable sources. These include wind, solar, biomass and hydro.

Compared with these, HDR geothermal electricity has many advantages:

- It can provide base-load electricity for customers (day and night).
- Production is totally emission free.
- It has a relatively small footprint with minimal visual impact.
- It has the potential to be scaled up to very large sizes (in excess of 1,000 MWe based on the very large resource in the Cooper Basin alone).
- It is based on existing technology.



HDR Geothermal Energy Compares Favourably With Other Electricity Sources						
	Emission Free	Ability to Carry Base Loads	Potential to Scale Up to 1000 MWe Plus	Renewable	Footprint	Technology
HDR Geothermal	✓	✓	✓	✓	small	Based on existing technology
Wind	✓	✗	✗	✓	large	Proven
Biomass	✗	✓	✗	✓	small	Developing
Hydro	✓	✓	✓	✓	large	Proven
Solar Panels	✓	✗	✗	✓	small	Proven
Coal	✗	✓	✓	✗	large	Proven
Gas	✗	✓	✓	✗	small	Proven



Geothermal Heat Exchanger



#### 4.4 HDR Geothermal Energy – How Does It Work?

HDR geothermal electricity should be distinguished from conventional geothermal electricity, such as the power plants installed in the hot springs regions of New Zealand's North Island. Conventional geothermal energy is generated from naturally occurring hot water and steam in rocks near volcanic centres. This form of electricity production is well established in many countries. The heat energy of hot geothermal fluids is converted into electricity using proven geothermal power generating technology. Conventional geothermal power stations are generally limited in size and are often linked to emissions of volcanic gases and toxic elements. A total capacity of approximately 9000 MWe of conventional geothermal power is installed worldwide.

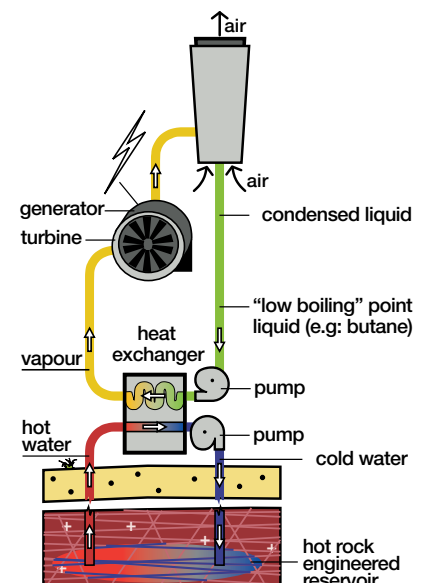
In New Zealand, there are 7 conventional geothermal power stations in operation, with an installed capacity of 437 MWe.

#### HDR Geothermal Energy

HDR geothermal energy generation only differs from its conventional cousin below ground. It relies on artificially creating an underground heat exchanger to extract heat from high temperature rocks by circulating water. It uses existing technologies, equipment and skills that were developed for the oil and geothermal power generation industries.

The simplest HDR plant consists of one injection well and two production wells. Water from the injection well flows through the underground heat exchanger developed within the hot rocks. This superheated water is brought to the surface under pressure and used to boil an organic liquid

(similar to those used in air conditioners and fridges) to produce vapour. The water cooled by this process is then reinjected into the underground heat exchanger in a closed loop, to extract more heat. It is never allowed to boil. The organic vapour goes through a turbine to generate electricity and the vapour is condensed (cooled) back to liquid and recirculated also in a closed loop to contact more super heated water.



Schematic diagram of binary geothermal power plant.

#### Two closed loops:

- water to extract geothermal heat;
- vapour of "low boiling" point organic liquid drives turbine / generator to convert heat to electricity.

“Geothermal” energy is simply heat (“thermal”) recovered from within the Earth’s (“geo”) crust

The dual closed loop system (superheated water and a low boiling liquid) is called a binary geothermal power plant. By circulating the water and the organic liquid in two closed loops, there are Zero emissions to the atmosphere.

#### High Heat Production Granites

Only a small number of locations around the world have the right conditions for cost effective production of HDR electricity. For the best results, HDR geothermal electricity generation needs a large volume of the right kind of hot rock in the right geological setting.

The best HDR energy source is a high heat production granite that has naturally occurring radiogenic minerals which produce heat. These granitic rocks are relatively good heat conductors. The heat needs to be trapped by an overlying blanket of insulating rocks, generally more than 3,000 metres in thickness.

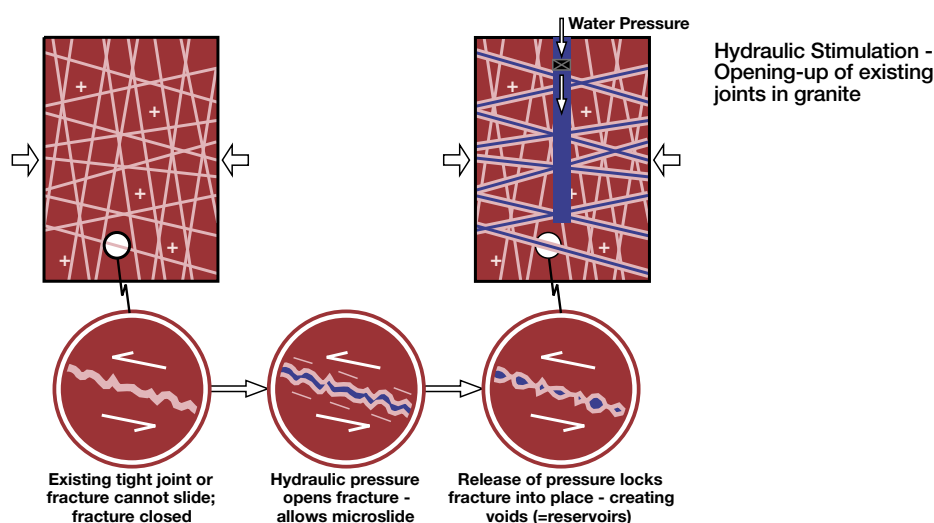
Without such cover of younger rocks the heat would be radiated away into the atmosphere and rock temperatures would be insufficient for cost effective HDR application.

Based on present geological knowledge, there are potentially only a few world-class high quality HDR resources in the Earth’s crust. Geodynamics has secured the rights to one of these in its GEL 97 and 98 tenements near Innamincka in South Australia. The high temperature granites which occur in these tenements at a depth of 3,700 metres and deeper, underlay a geological structure known as the Cooper Basin. The Cooper Basin is better known for its extensive resources of natural gas and smaller scale reserves of oil. In fact, it was petroleum exploration wells drilled over the past thirty years which identified the presence of the high temperature, high heat production granites underneath parts of the Cooper Basin that form the basis of Geodynamics’ resource.

#### Extracting the Heat from High Heat Production (HHP) Granites

The HHP granites can be reached by standard oil well drilling technologies to depths of 5,000 metres or less.

Having drilled to the right depth in the HHP granite, the next step is to develop the underground heat exchanger by opening up an existing network of cracks and fractures extending horizontally or near horizontally over 500 metres or more. This process relies on hydraulic stimulation techniques (“fracking”) developed by the oil industry. Fracking, in the case of HDR development, involves slowly pumping water into a plugged off section near the bottom of the well at high pressures over a period of one to two weeks. Fractures and joints that are normally present in all granites are opened slightly allowing the two rock surfaces to slip over a small distance in response to local stress conditions.

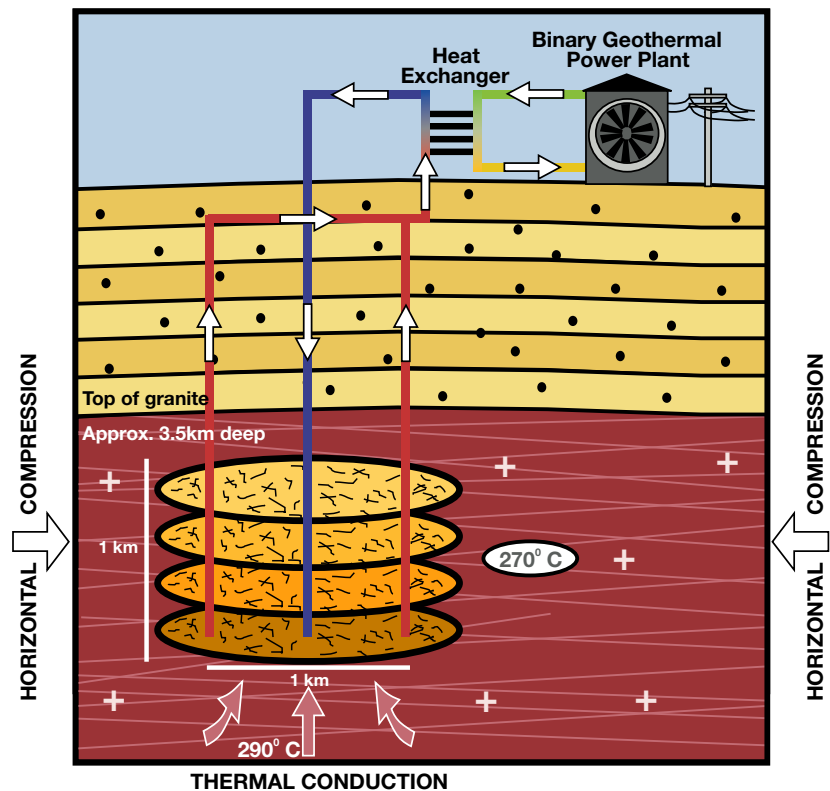




Natural joints in granite outcrop

This slip emits noise that can be detected by special geophones positioned in shallow boreholes nearby (micro-acoustic monitoring). When the hydraulic pressure at the bottom of the well is released on completion of the fracing phase, the joints and fractures close again, but they do not match up because of the slip. A network of small interconnected gaps and voids are created that form fluid pathways.

Collectively, these pathways make up the underground heat exchanger, allowing water to be pumped between the wells. Underground heat exchangers can be extended more than 500 metres away from the geothermal well. They are usually elliptical and lens-like in shape because of tectonic conditions in the Earth's crust. When developed to this scale, typical dimensions are 1000 metres by 600 metres with a thickness of approximately 200 metres.



Stacked heat exchangers in small scale demonstration plant



## A cubic kilometre of hot granite has the thermal energy equivalent of 40 million barrels of oil

The orientation of the lens-shaped underground heat exchanger (whether flat-lying or steeply dipping) depends on the local stress conditions within the crust. Flat lying or horizontal heat exchangers are ideal for HDR operation because they offer the potential to be stacked one on top of another using the same well. They can also be linked together horizontally. International experience in HDR indicates that the existing stress conditions within Geodynamics' tenements at Innamincka favour horizontal heat exchanger developments in uniform granite.

### 4.5 Why Now For HDR Geothermal Electricity in Australia?

Geodynamics is taking advantage of a unique confluence of events in its plans to develop commercial HDR geothermal electricity in Australia. These four factors, which have only come together recently, are:

#### 1. Financial Incentives for Renewable Energy.

In the light of rapidly growing international recognition of the need to reduce greenhouse gas emissions, the Commonwealth Government of Australia introduced the *Renewable Energy (Electricity) Act 2000*. Under the Act, there are substantial financial incentives for energy generators created by tradeable RECs. Conversely, financial penalties will apply from 2010 for electricity retailers if they collectively do not acquire at least 9500GWh of power from renewable sources each year. This equates to approximately 2% of their power purchases. As HDR energy is an eligible renewable energy under the Act, this provides for significant additional revenue for Geodynamics' proposed power stations.

#### 2. Overseas Research and Development.

HDR research and development has been accelerating overseas during the past decade, driven by governments, universities and the private sector. The aggregate expenditure on HDR research is estimated at approximately US\$500 million. In particular, the 1997 tests at Soultz in France which demonstrated the potential to generate 10 MWt of thermal energy from a four month test of a two-well HDR system were a major advance. The granites at Soultz have a temperature of approximately 170°C at a depth of 4,000 metres. This is low when compared with 250°C at similar depths in Geodynamics' tenements at Innamincka.

#### 3. Discovery of the World-Class HDR Resource in the Cooper Basin.

The discovery and measurement of high temperatures in granites underlying parts of the Cooper Basin was a fortuitous by-product of petroleum exploration wells drilled over the past thirty years. However, it is only recently that the very large energy potential within this region has been recognised. Temperatures logged in three of the wells were between 232°C and 245°C at depths of approximately 3,600 metres. The temperature increases with depth and at 5,000 metres it is estimated at approximately 290°C.

With their involvement in overseas HDR research, the founders of Geodynamics recognised that HDR geothermal electricity development presented a way to exploit the buried energy in the Cooper Basin.

#### 4. Availability of Title.

The South Australian and New South Wales Governments introduced provisions in 2000 and 1998 respectively which for the first time recognised geothermal heat as a resource in 2000 and 1998 respectively. Both Governments offered tenements for geothermal exploration.

In particular, the Government of South Australia offered three Geothermal Exploration Licences (GELs) over parts of the Cooper Basin by way of a competitive tender in late 2000. Geodynamics was successful in acquiring one block (GEL 98) in the tender and has recently secured the second block (GEL 97).

For the first time, these four developments have come together to provide a favourable environment in which to commercialise HDR geothermal electricity in the years ahead.

### 4.6 The HDR Potential In Geodynamics' Tenements – How Much Energy is There?

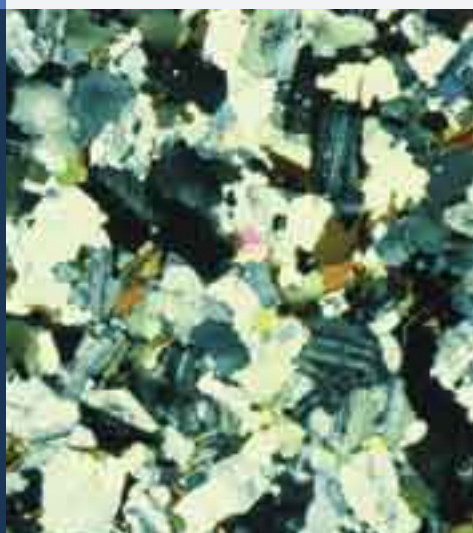
The economics of energy extraction from HDR in the Cooper Basin are excellent due to the favourable combination of high temperatures at relatively shallow depths over large areas.

The distribution of these temperatures has been established from an analysis of more than 30 years of deep oil and gas drilling data. The energy potential of Geodynamics' HDR geothermal resource in the Cooper Basin is massive. To illustrate the contained energy, the thermal energy equivalent of approximately 40 million barrels of oil could be liberated by lowering the average temperature of one cubic kilometre of granite from 240°C to 140°C.





## Major advances made in Europe and Japan will directly benefit Geodynamics



Microscopic thin section of granite

The two tenements held by Geodynamics near Innamincka contain more than 1,000 cubic kilometres of granite at depths between 3,500 metres and 5,000 metres. The prior exploration data shows that most of this mass of granite has a temperature considerably more than 250°C. This 1,000 cubic kilometre block could, if its temperature was lowered to 140°C, liberate the thermal energy equivalent of:

- 50 billion barrels of oil (by comparison, total Australian oil reserves are 2.9 billion barrels), or
- 10.3 billion tonnes of hard coal (total Australian coal reserves are 47 billion tonnes).

On a smaller scale, based on our economic modelling, a buried block of high temperature granite 2,500 metres x 2,500 metres and 1,000 metres thick (say from a depth of 3,900 metres to 4,900 metres) could provide 275 MWe of renewable and emission free electricity for a period of 30 years. This area represents less than 1% of the overall resource potential contained within Geodynamics' two tenements in the Cooper Basin.

### 4.7 HDR Geothermal Energy - International Developments

The concept of HDR geothermal energy originated three decades ago at the Los Alamos National Laboratory in the USA. Since that time, Geodynamics estimates that more than US\$500 million has been spent on research and development internationally, mostly in the USA, Europe and Japan. However, the transition to commercial operations has been slow due to the large costs involved in the conduct of experiments and the large amount of R&D required.

Progress has accelerated over the past five years, and HDR technology is now in transition from research to commercial reality. Several HDR geothermal projects are currently being pursued in various countries.

Great progress has been made in the last decade in underground heat exchanger development, including pressure management and acoustic monitoring. The most advanced HDR project is in France. New projects are being initiated in California, Germany and Switzerland and R&D activities continue in Japan.

These projects have yet to mature into commercial operations. In each case, the local rock temperatures are lower than at Geodynamics' tenements at Innamincka. Nonetheless, each international project which set out to develop an underground heat exchanger successfully completed this phase.

The keys to cost effective electricity production from HDR geothermal development are:

- ✓ Rock temperatures of more than 250°C at less than 5,000 m depth;
- ✓ Suitable granite volumes to host the heat exchanger;
- ✓ 3-4 km of easily drilled, low conductivity sediment cover; and
- ✓ Compressional crustal stress conditions, favouring horizontal underground heat exchanger development.

All four conditions are present in the Cooper Basin over a considerable area, making it a world-class, high-grade HDR geothermal resource.

Lower: Location of Soultz project, France. Distance between well one and well two (foreground) equals approximately 0.5 km.

Right: Schematic diagram below a photograph of the actual site of the Soultz project. The two developed underground heat exchangers are shown in orange.



### Soultz HDR Geothermal Project, France

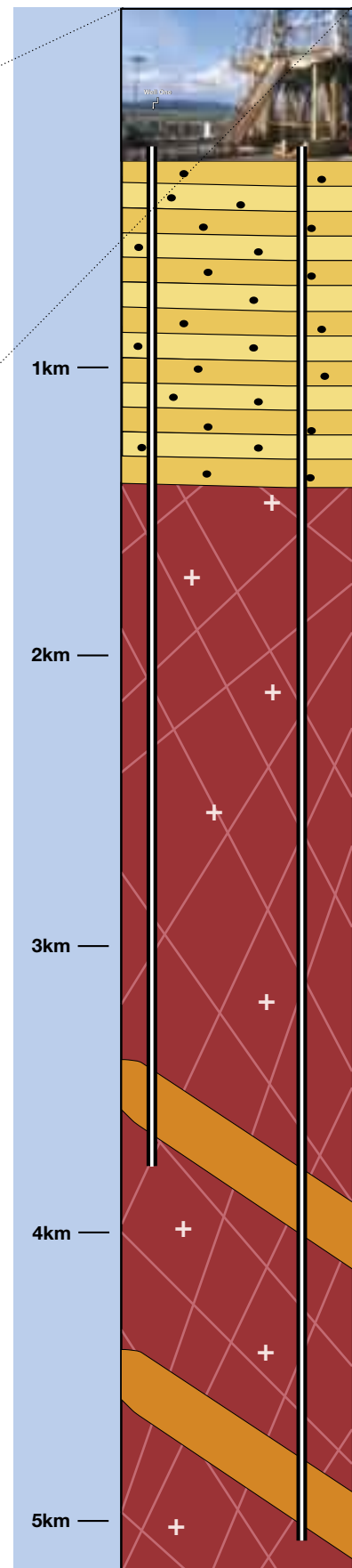
The Soultz HDR project is the most advanced HDR project. It is located in north eastern France in the Rhine Valley.

The Soultz team in 1997 successfully developed an underground heat exchanger between two wells at almost 4,000 metres depth. Following this, the project pumped water between the wells with an average rock temperature of 150°C at a rate of 25 litres per second for a period of 4 months without any water losses. This phase of testing produced a continuous 11 MWt of thermal energy.

The temperature of the return water at the surface was more than 140°C and did not cool down during the test. The pumping power at 250 KWe for circulating the water was much lower than anticipated and compares well with the thermal output of 10 MWt.

The Soultz team has recently developed a deeper underground heat exchanger at 5,000 metres depth in rock temperatures of 200°C by extending one of the drill holes and repeating the fracturing phase. The underground heat exchanger was controlled so as not to intersect the previous, shallower and lower temperature underground heat exchanger.

Funding is now in place for two production wells to be drilled into the deep underground heat exchanger and for the development of a power station during 2002 and 2003. The first deep production well commenced in July 2002. The project is now being commercialised and the Shell Company and the major European utilities in France, Germany and Italy have acquired equity positions.



## Japan

An international research project coordinated by the Tohoku University in Japan has developed new mapping techniques which will support the process of geothermal underground heat exchanger imaging and characterisation. The advanced techniques developed by the project give new images and a better understanding of the way HDR heat exchangers are structured and behave. Dr Doone Wyborn and Dr Prame Chopra, founding directors of Geodynamics, have worked with this project for the last 5 years.

### 4.8 Economics of HDR Geothermal Renewable Energy

#### Cost Estimates for Production of HDR Geothermal Electricity

The overall objective of Geodynamics is to produce electricity from its HDR geothermal resources on a large scale and at competitive costs. The Directors believe that this goal is realistic based on the results of two scoping studies carried out on Geodynamics' world-class high temperature HDR resource at Innamincka.

The studies assessed two sizes of project:

- A 13 MWe Commercial Demonstration plant using three wells. This is based on adding one additional well to the two well Stage One test program outlined below and installation of a conventional binary power plant at the surface. This project was modelled using the proprietary EGS (Enhanced Geothermal System) model from the Laboratory for Energy and the Environment at MIT, USA. The EGS model showed that the electricity generation capacity remained stable, averaging 13 MWe at 90% capacity over 25 years, with water temperatures falling only 2°C over this period.
- A 275 MWe Commercial Plant using a well field comprising 37 wells. This would be based on the sale of electricity into the national grid via a new high voltage transmission line approximately 400 kilometres long. This size allows the project to take advantage of two key economies of scale:

- ✓ A multiple well system will allow larger water flows per production well. Each production well will have a larger number of neighbouring injection wells. Thermal energy production and therefore electricity production is directly related to the water flow rate through the underground heat exchanger.
- ✓ Many years of experience from the petroleum industry has shown that the cost of drilling wells falls significantly as the number of wells drilled in the same field increases. This is due to better knowledge of drilling conditions allowing faster drilling rates, and the spread of mobilisation, supply and overhead costs over a larger number of wells.

The production cost estimates for the 275MWe plant of \$44/MWh to \$49/MWh are more than competitive with other forms of renewable energy such as wind, biomass, hydro and solar.

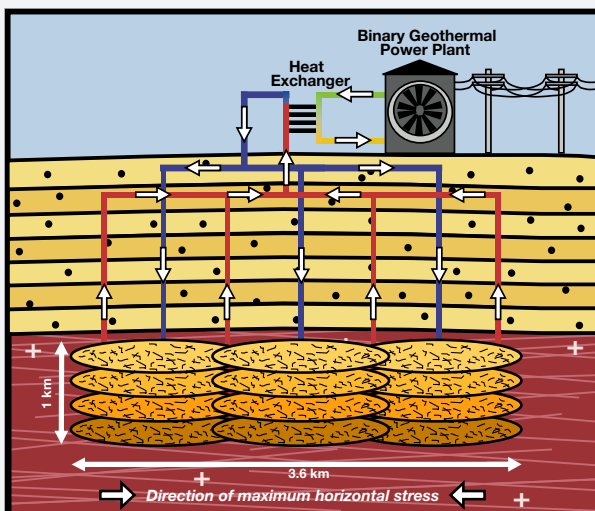
Sensitivity analyses to plus or minus 20% have been carried out on the most critical factors affecting the model. The accompanying diagram shows that flow rate, total capital cost and cost of capital are the most sensitive factors. For the 13 MWe demonstration plant, a 20% increase in flow rate would reduce the overall operating cost by 12%. A higher flow rate means a higher rate of heat transfer to the above ground power plant and therefore more electricity production.

This finding bodes well for scaling up the system, as flow rates are expected to increase following establishment of a network of injection and production wells, whilst capital costs will decrease with multi-well drilling contracts and large orders for plant. Other factors such as plant operating costs, the number of open joints and flow resistance will have less impact on the cost of electricity production.

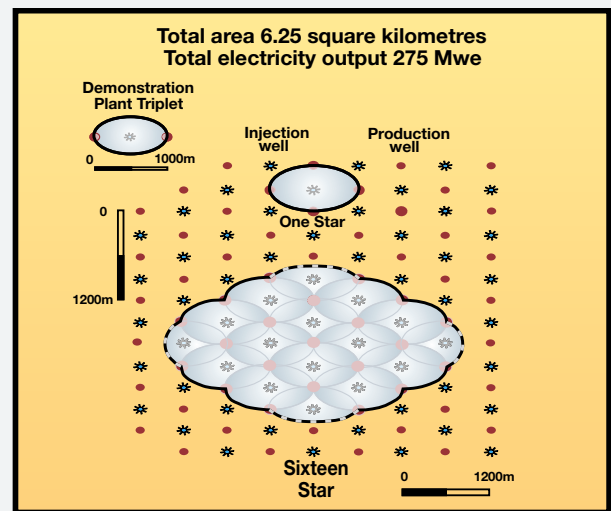
#### Summary Of Cost Studies for HDR Geothermal Electricity at Innamincka

Generation Capacity	Units	13MWe Plant	275MWe Plant
Number of Wells	#	3	37
Surface Area of Well field	km <sup>2</sup>	0.5	6.25
<b>Indicative Capital Costs</b>			
→ Well field and Fraccing	\$M	20	156
→ Power Plant	\$M	26.5	613
<b>Indicative Production Costs</b>			
→ Cash Operating Costs	\$MWh	20	9
→ Capital Costs	\$MWh	42	30
→ Power Transmission	\$MWh	2	5 to 10
<b>Total Indicative Cost</b>	<b>\$MWh</b>	<b>64</b>	<b>44 to 49</b>

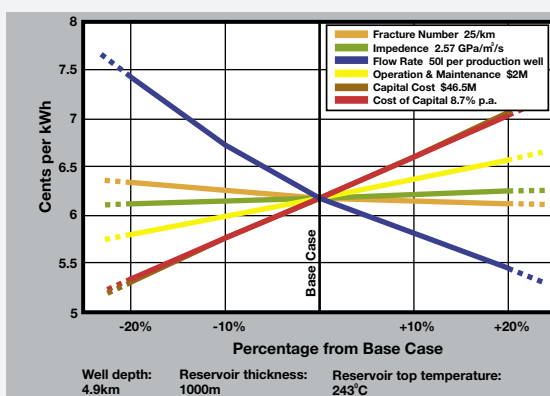
## A compelling case for HDR geothermal energy



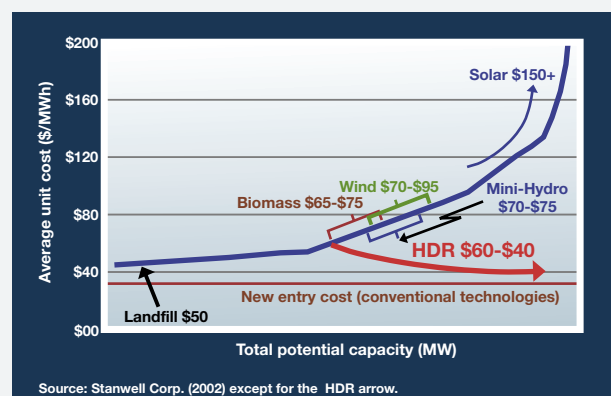
Multiple well system enables the joining of horizontal heat exchangers.



Plan view of large commercial HDR geothermal development.



Sensitivity analysis diagram. Flow rate and Capital are the most sensitive factors (have steepest curves).



Source: Stanwell Corp. (2002) except for the HDR arrow.

The range of current renewable energy options increases in cost with scale. HDR geothermal has a unique position based on economic modelling studies.



Layout of Stage One Development (plan view)

#### 4.9 Business Plan

Geodynamics has a three stage plan to reach the objective of generating large base-load electricity at competitive costs. This plan is based on developing the world-class HDR resource in the Cooper Basin.

In conjunction with this, Geodynamics will initiate surface exploration on its other HDR tenements in the Hunter Valley and Eromanga Basin to assess their HDR resource potential.

##### Stage One

##### Development of a Two Well HDR System to Produce 20 MWt of Thermal Energy - Cooper Basin Project

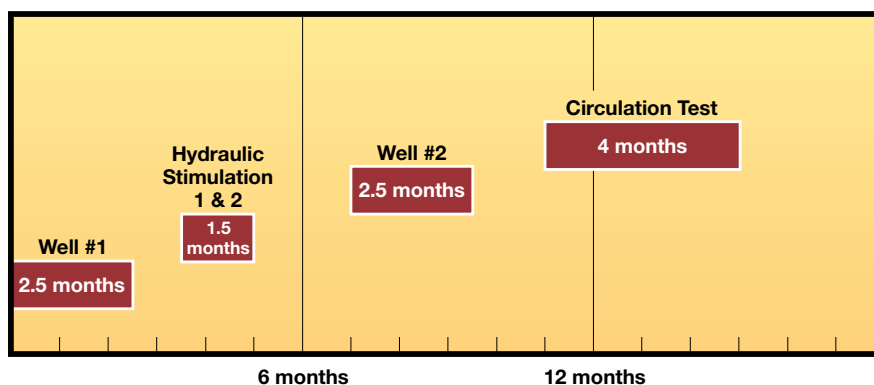
Immediately following completion of the IPO, Geodynamics plans to mobilise drilling crews to Innamincka to start work on the first two well HDR system. This will comprise an underground heat exchanger at a depth of approximately 4,400 metres. It will be located adjacent to the existing McLeod #1 well which was drilled as a petroleum exploration well in 1983. Geodynamics has an option agreement with Santos for the use of this well for micro-acoustic monitoring purposes.

HDR #1 well will be drilled as an 8.5-inch hole to a depth of 4,150 metres and cased with seven inch casing. At this depth, the well will be 400 metres into the granite. A further 250 metres of six inch well will then be drilled to a total depth of 4,400 metres.

Once this well is completed, Geodynamics plans to develop two stacked horizontal heat exchangers in the granite over the bottom 500 metre section of the well using water pressures of up to 60 MPa at the surface. The flow rate is estimated at up to 25 kg per second. Each stimulation will last approximately 16 days. The first stimulation will take place in the 250m open hole section, and the second in perforated casing immediately above.

During the stimulation process, Geodynamics plans to use the nearby McLeod #1 well as a deep acoustic monitoring well. Three other new, 900 metre deep wells spaced about 2,000 metres from HDR #1 well will be drilled and installed with geophones to establish an acoustic monitoring network.

#### Time Schedule of Stage One of Business Plan



## A three stage plan to reach the objective of generating large base-load electricity at competitive prices

As the stimulation proceeds over 16 days, the acoustic data will be collected and processed (partly live on site) by a specialist team from the Niitsuma Fracture Laboratory based at Tohoku University, Sendai, Japan. This process will identify the shape and orientation of the two underground heat exchangers. They are expected to extend out in an elliptical pancake shape over 500 metres in dimension along the maximum horizontal stress direction (E-W).

Having completed the stimulation process in HDR #1 well, Geodynamics plans to drill the second well (HDR #2), approximately 500 metres away from #1 well.

The system will be tested to assess its heat generation capacity and other parameters. This testing process will involve circulation of water for a period of four months. The objective is to achieve flow rates of around 25 kg per second between the two wells with surface temperatures of approximately 230°C. This would represent a substantial thermal energy output of 20 MWt.

In parallel with the development of the proof of concept two-well HDR circulation system in the Cooper Basin described above, the Company will continue to explore the HDR resource potential of tenements in the Hunter Valley, NSW and pursue its application for a permit to explore for geothermal energy in south west Queensland.

The total budgeted cost of developing the proof of concept two-well HDR circulation system in the Cooper Basin is \$13.35 million. Part of the funding for this work is expected to be provided by the Commonwealth Government under a conditional "R&D START" Grant of up to \$5 million. The remaining funds required for Stage One are being raised under this Prospectus.

The Directors believe that achieving the minimum subscription will provide the Company with sufficient funds to carry out Stage One of its business plan described in this Prospectus.

### **Stage Two** **Installation of the 13 MWe Commercial Demonstration Plant**

Stage Two will see the first production and sale of electricity for Geodynamics. Geodynamics plans to construct a conventional geothermal power plant at the surface on the site of the Stage One project. This is planned to have a capacity of 13 MWe.

The Stage Two project will include:

- ✓ Expanding the heat exchanger by extending the two existing wells to 4,900m depth and stimulating two more cells below the existing two.
- ✓ Drilling of a second production well to 4,900m, making a three well system in total. Geodynamics expects that this system will have the capacity to provide a flow rate of 100 kg per second of water at 240°C.
- ✓ The installation of a binary geothermal power plant with an output of 13 MWe.

Geodynamics has already entered into a Memorandum of Understanding which is expected to lead to the sale of the electricity from the 13 MWe plant to Santos for use in its Moomba gas plant and township located 45 kilometres away from Geodynamics' project.

The Directors will investigate the opportunities of funding the capital cost of establishing the 13 MWe power plant (expected to cost in the order of \$30M) from sources other than equity.

### **Stage Three** **275 MWe Commercial Plant**

Once the 13 MWe plant is operational, Geodynamics plans to establish a full-scale Commercial Plant, nominally of 275 MWe capacity. The energy potential within Geodynamics' HDR resource at the Cooper Basin is adequate to supply many of these size plants at one time.

Geodynamics plans to sell electricity from the 275 MWe Commercial Plant into the national grid system via a new high voltage distribution line.

For Stage Three, significant funding will be required for the full commercialisation of the Cooper Basin resource through the construction of a major power plant.

Funding arrangements at the appropriate time will be required and the Directors anticipate this funding will be sourced from a mixture of debt and equity. The introduction of appropriate joint venture partner(s) is also an option available to the Company to assist in the funding of this major commercialisation project.





#### 4.10 Source and Application of Funds following the Completion of the Minimum Offer

SOURCE OF FUNDS \$'000			
Year ending June 30	Total	2003	2004
Existing cash balance <sup>1</sup>	137	137	-
Equity funds from IPO	11,500	11,500	-
R&D START Grant	4,075	2,190	1,885
Interest income	317	240	77
<b>Total Funds Available</b>	<b>16,029</b>	<b>14,067</b>	<b>1,962</b>
APPLICATION OF FUNDS \$'000			
Year ending June 30	Total	2003	2004
<b>Cooper Basin Project</b>			
Salaries & on-costs	750	350	400
Field Operations <sup>2</sup>	12,600	6,950	5,650
<b>Total Cooper Basin</b>	<b>13,350</b>	<b>7,300</b>	<b>6,050</b>
<b>Hunter Valley</b>	<b>30</b>	<b>20</b>	<b>10</b>
<b>Queensland</b>	<b>20</b>	<b>10</b>	<b>10</b>
<b>Expenses of the Offer<sup>3</sup></b>	<b>1,258</b>	<b>1,258</b>	<b>-</b>
<b>Corporate costs</b>	<b>1,112</b>	<b>612</b>	<b>500</b>
<b>Total Expenditure</b>	<b>15,770</b>	<b>9,200</b>	<b>6,570</b>
<b>Closing Cash Balance</b>		<b>4,867</b>	<b>259</b>

- (1) Opening cash balance as at 1 July 2002
- (2) Drilling, fracture stimulation, circulation and monitoring. The Company has issued tenders and received competing responses for most of this field work but has not let any contracts. The Company therefore believes it is inappropriate to breakdown these field costs in any more detail due to the commercially sensitive nature of the amounts.
- (3) Total estimated costs of the Offer are \$1,530,000 (refer Section 10.10), including prospectus preparation costs and Pre-IPO rebates. Costs of \$272,000 are estimated to have been incurred by 30 June 2002 with the balance of \$1,258,000 estimated to be incurred in the 2003 financial year.

#### 4.11 Source and Application of Funds following the Completion of the Maximum Offer

SOURCE OF FUNDS \$'000			
Year ending June 30	Total	2003	2004
Existing cash balance <sup>1</sup>	137	137	-
Equity funds from IPO	15,500	15,500	-
R&D START Grant	5,000	2,580	2,420
Interest income	495	356	139
<b>Total Funds Available</b>	<b>21,132</b>	<b>18,573</b>	<b>2,559</b>
APPLICATION OF FUNDS \$'000			
Year ending June 30	Total	2003	2004
<b>Cooper Basin Project</b>			
Salaries & on-costs	940	400	540
Field Operations <sup>2</sup>	16,750	8,200	8,550
<b>Total Cooper Basin</b>	<b>17,690</b>	<b>8,600</b>	<b>9,090</b>
<b>Hunter Valley</b>	<b>250</b>	<b>70</b>	<b>180</b>
<b>Queensland</b>	<b>250</b>	<b>90</b>	<b>160</b>
<b>Expenses of the Offer<sup>4</sup></b>	<b>1,478</b>	<b>1,478</b>	<b>-</b>
<b>Corporate costs</b>	<b>1,312</b>	<b>712</b>	<b>600</b>
<b>Total Expenditure</b>	<b>20,980</b>	<b>10,950</b>	<b>10,030</b>
<b>Closing Cash Balance</b>		<b>7,623</b>	<b>152</b>

- (4) Total estimated costs of the Offer are \$1,750,000 (refer Section 10.10). Costs of \$272,000 are estimated to have been incurred by 30 June 2002 with the balance of \$1,478,000 estimated to be incurred in the 2003 financial year

The extra proceeds from the oversubscription allocation will largely be directed toward the Cooper Basin Project in expanding the heat exchanger by extending the two existing wells to 4,900m depth and stimulating two more cells below the existing two. The additional expenditure will accelerate progress in establishing the demonstration plant (Stage 2).



## The pre-eminent HDR geothermal tenement position in Australia including the world-class high-grade resource in the Cooper Basin, South Australia

### 4.12 Geology and Geothermal Resources

Geodynamics has the pre-eminent HDR geothermal tenement position in Australia, which includes its world-class, high-grade resource in the Cooper Basin, South Australia. The definition of this resource has been aided by previous petroleum exploration including drilling. Five prior exploration wells terminated in the hot basement granites within Geodynamics' tenements.

Geodynamics has four HDR geothermal exploration tenements in Australia. Two are in the Cooper Basin, South Australia and two are in the Hunter Valley, New South Wales. In addition, the Company has applied for a large HDR geothermal exploration tenement in the Eromanga Basin in south west Queensland.

Licence	State	Area (sq km)	Ownership	Region
Innaminka GEL 98	SA	494	100%	Cooper Basin
Bulyeroo GEL 97	SA	491	100%	Cooper Basin
Bulga EL 5886	NSW	200	100%	Hunter Valley
Muswellbrook EL 5560	NSW	300	100%	Hunter Valley
Nockatunga EPM 13583	QLD	3400	100% (pending)	Eromanga Basin

#### High Heat Production Granites

Granitic rocks often occur in large masses known as batholiths totalling thousands of cubic kilometres in volume. Granite is an inert or non-reactive rock and is relatively uniform in composition. Granites commonly feature on gravity maps as ovoid-shaped gravity lows. Buried granites can be identified at the surface by gravity surveys due to two inherent properties:

- ✓ Granites have a relatively low specific gravity compared to other rocks, and
- ✓ Granites often occur in large masses.

Granites generally have an internal fabric of cooling joints and fractures, a result of cooling down from a melt or magma deep in the Earth's crust to a solid. This fabric of joints and fractures is utilised in the development of an underground heat exchanger for the extraction of heat.

HDR geothermal energy in its Australian context relies on the presence of HHP granites. HHP granites have naturally occurring radiogenic elements which produce thermal energy.

The heat is trapped inside these granites by an overlying blanket of insulating rocks. To be effective, such a blanket of overlying rocks needs two properties:

1. The blanket has to be a relatively good insulator. Granite itself does not have adequate insulating properties. HHP granites are present at the surface near Stanthorpe in Queensland and near Tenterfield and Bathurst in New South Wales. At these locations, the granite is not hot enough to generate HDR geothermal energy (even at 6,000 m depth), because the heat escapes into the atmosphere through the granite. Ideally, younger sedimentary rocks containing some coal bands are best to trap the heat; and
2. The insulating blanket has to be the right thickness. Around 3,000 metres of sediments is ideal. More than 5,000 metres of overlying younger rocks would put the buried granites beyond reach of conventional drilling rigs.



Granite drill core with natural fracture



### Australian HDR targets

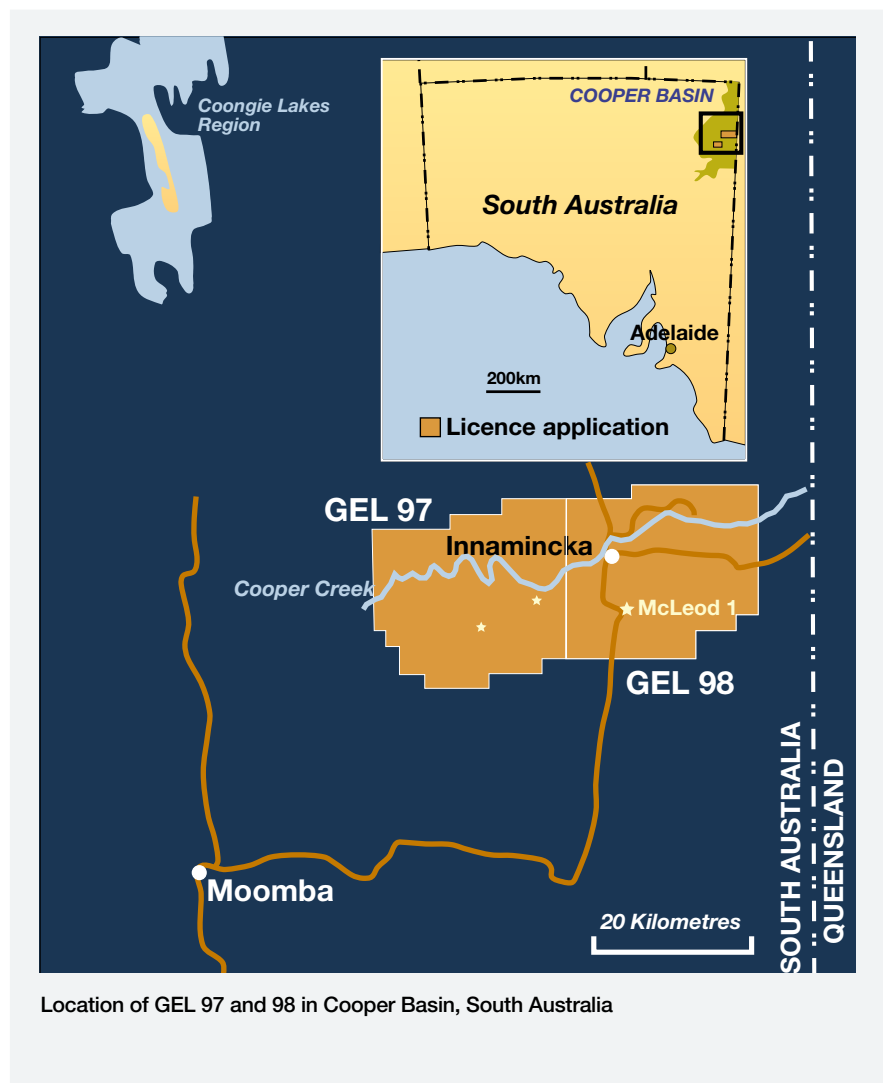
The target for HDR resources is a HHP granite overlain by insulating sedimentary rocks such that temperatures generated within the granite in the depth range of 3,000 metres to 5,000 metres are high enough to economically extract the heat for power generation. Australia contains a combination of geological conditions to give rise to favourable targets. Its geology has been extensively mapped and shown to contain many areas with granitic bodies of massive proportions. A relatively high proportion of these are known to be HHP granites, particularly in the area through the centre of the continent comprising South Australia, Northern Territory and western Queensland. Australia's ancient geological basement containing these granites is also overlain in many areas by sedimentary basins. Some of these basins contain the buried Permian (250-280 million years old) coal forest that gave rise to Australia's enormous coal resources. Coal measures are the ideal sedimentary rock units to provide heat insulation.

Geodynamics' geothermal licences and its Queensland licence application are all based on the known or possible occurrence of the same packages of rocks – HHP granite basement overlain by insulating coal measures of Permian age. In the Cooper Basin tenements, this combination of rocks has been proven by petroleum drilling. In NSW and Queensland, the existence of Permian coal measures is known, but the presence of basement granites has not yet been proven.

### Cooper Basin Project

#### Tenements

In South Australia, Geodynamics holds two geothermal exploration licences GEL 98 and GEL 97. The combined area of the tenements is 985 square kilometres.



Location of GEL 97 and 98 in Cooper Basin, South Australia

## The entire basement of Geodynamics' Cooper Basin GELs comprise hot granite

### Geology

The Cooper Basin comprises coal, oil, and gas bearing sedimentary rocks at a number of levels in the sequence. As over 1,100 exploration and production wells have been drilled in the region, the geology is relatively well known. Insulating sequences containing Permian coal measures are well developed in the Late Permian Toolachee Formation and the Early Permian Patchawarra Formation. Other units in the Cooper Basin contain abundant shales deposited in lacustrine conditions. Shale is also an excellent insulating rock type. The overlying Eromanga Basin also comprises shales and coal measures in much of its sedimentary section.

Based on seismic and drilling data, the thickness of the overlying sedimentary formations within GELs 97 and 98 tenements ranges from 3,500 metres to 4,400 metres. The accuracy of these measurements range from a few tens of metres within 1,000 metres of existing petroleum wells to more than 100 metres in areas remote from the wells. Based on the drilling and gravity data, Government geological experts have interpreted that the entire basement of Geodynamics' Cooper Basin GELs comprise granite. Drill core from the granite has been dated at Carboniferous age (300-325 million years old).

Samples of drill core and cuttings show that the granites are coarse grained with crystals of quartz and feldspar up to 1 cm across making up the bulk of the rock. Measurements have shown that their heat productivity is about 5 times greater than for common granites.

On the basis of gravity and magnetic data it is estimated that the granites have a thickness of many thousands of metres. The insulating properties of the overlying sedimentary rocks, in combination with the high heat productivity of the basement granites give rise to the unusually high geothermal gradients in the sedimentary rocks.

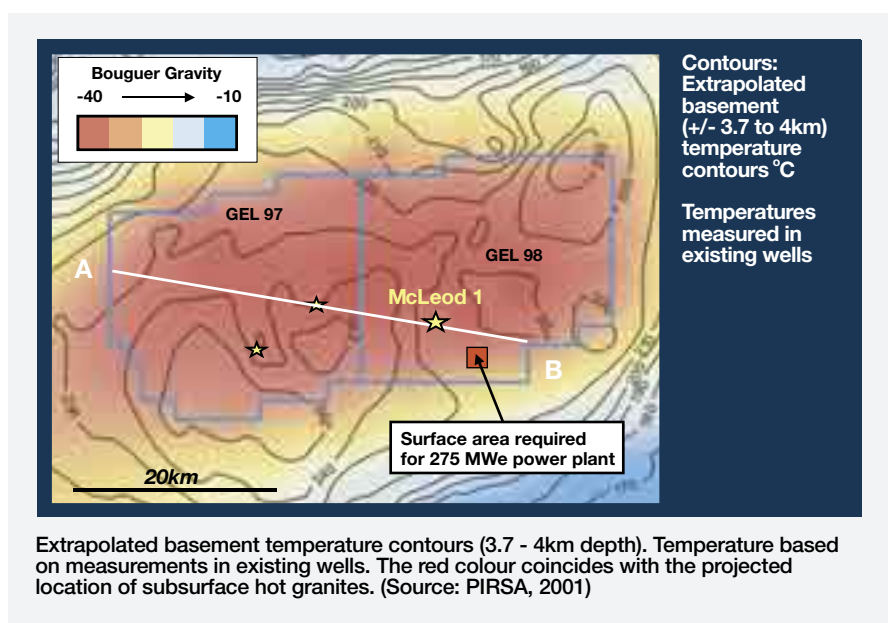
Previous drilling and exploration data also indicate that within Geodynamics' tenements, the contact between the sedimentary rocks and the granites is relatively flat in most areas, and devoid of major faults likely to interfere with geothermal resource development.

### Previous Exploration for Petroleum

The unusually high geothermal gradients in the Cooper Basin were first noted by early oil explorers in the 1960's. Extensive and numerous seismic and gravity surveys have also been completed, including over 100,000 km of seismic lines in the South Australian section of the basin.

Government geologists (State and Federal) have been able to define the shape, thickness and extent of the Cooper Basin using this large database. Seismic data show that the area occupied by Geodynamics' tenements occupies the deepest part of the Cooper Basin in South Australia.

A total of five deep wells were drilled in the area occupied by Geodynamics' tenements between 1971 and 1997 in an unsuccessful attempt to commercialise "tight" gas resources. Three of these wells were drilled to basement and intersected granite. Studies using drilling data and gravity survey information indicated that an area of approximately 1000 km<sup>2</sup> is underlain by granite. This area was divided into two areas for geothermal exploration and geothermal exploration licences were subsequently offered for tender in February 2001. They are now both ultimately owned by Geodynamics.



### Geothermal Gradients and Stress Conditions

The geothermal gradients of three deep petroleum wells drilled in Geodynamics' Cooper Basin tenements are tabulated below. These wells were drilled into the basement and intersected HHP granite. Two other wells shown in the table do not have reliable temperature measurements and did not intersect the basement.

Well Name	Year drilled	Total depth (m)	Temperature at the bottom of the Well* (°C)	Average temperature gradient from surface (°C/km)	Rock type at bottom of hole
Bulyeroo 1	1994	3,545	240	62.0	HHP granite
Burley 2	1984	3,709	245	60.9	HHP granite
McLeod 1	1983	3,812	232	55.8	HHP granite
Burley 1	1971	3,650			Sediments
Burley 3	1997	3,098			Sediments

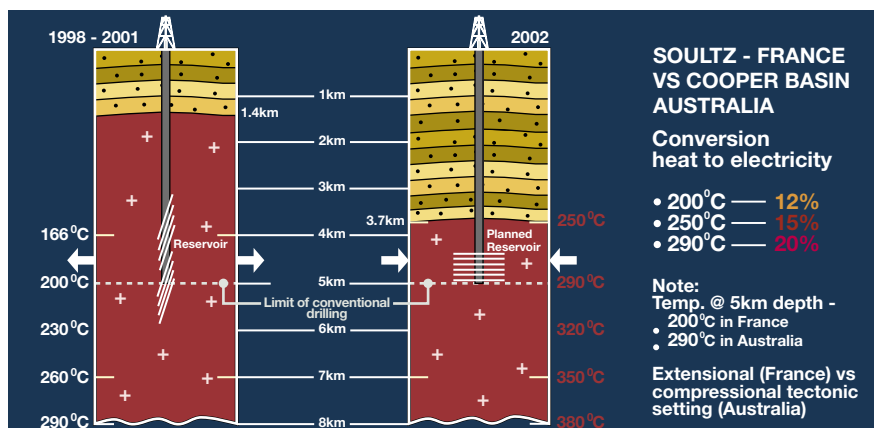
**\*The cement bond log temperature:** Regarded as the most accurate determination of temperature because it is taken a considerable time after drilling is completed (minimum of 1-2 months). However even this temperature is commonly an under-estimate, since it takes up to 6 months for the cooling effect of drilling to completely dissipate.

At Bulyeroo 1, a temperature gradient of 70°C/kilometre was measured to 2,865 metres where the temperature was recorded at 222°C during a second cement bond logging run, two weeks after the first run. The extrapolated temperature at the granite top (3,500m) from this log is 266°C. This extraordinarily high temperature remains to be confirmed but there is no reason to discount the determination.

Geothermal gradients of 60°C per km and temperatures of over 240°C at the bottom of the basin at little more than 3,500 metres depth are extraordinarily high on a worldwide comparison. Outside volcanic regions, there is no other area on Earth reported with such high temperatures at such shallow depths.

Comparison of HDR geothermal areas in Soultz (France) and Cooper Basin (Australia).

Note difference in temperatures at 5km depth.



Temperatures of over 240°C at little more than 3,500m depth are extraordinarily high on a worldwide comparison

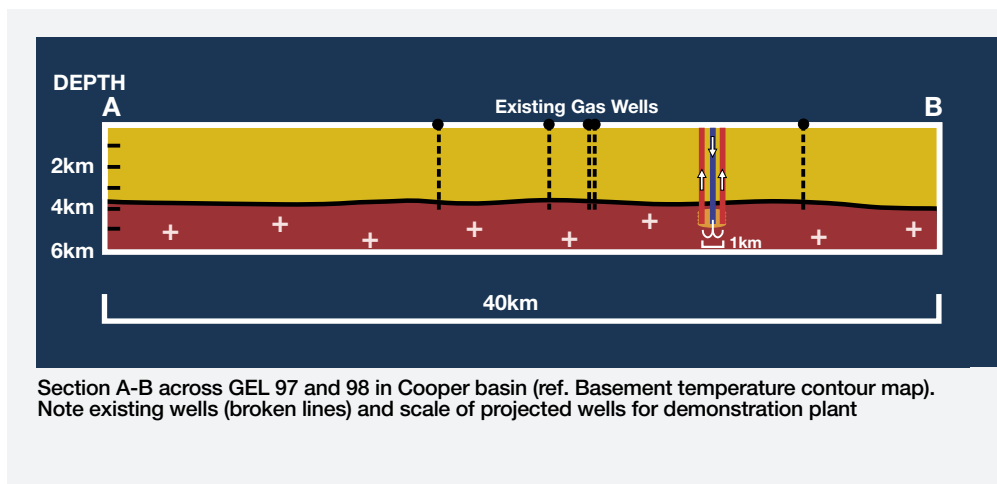
The many exploration wells in the Cooper Basin have enabled the Petroleum Division of Primary Industries and Resources South Australia (PIRSA) to construct a temperature contour map of the base of the Cooper Basin. Part of this map is shown in the accompanying figure overlying an image of the gravity values for the area (red for low gravity, blue for high gravity). The highest temperatures correspond to the lowest gravity, and the two Geodynamics' GELs.

Stress conditions within the Cooper Basin have been measured in many wells sunk by petroleum explorers. The measurement of the confining rock stress is carried out as an aid to performing hydraulic fracturing ("fracking") of the surrounding rock to enhance the flow of oil or gas.

In the area of Geodynamics' tenements, published data indicates that the minimum horizontal stress and the vertical stress are similar in magnitude and the maximum horizontal stress is substantially larger and oriented East-West. Unpublished data on a few of the deep wells within the tenement area show that the vertical stress is the minimum. Overseas experience shows that where the vertical stress is the lowest, underground heat exchanger development is expected to be horizontal. This is the favoured orientation to optimise the economic potential of large-scale HDR geothermal heat extraction.

#### HDR Geothermal Resource Potential

It is possible to estimate the thermal energy held within a slab of granitic rock such as that underlying GELs 97 and 98. This is calculated using the heat capacity of granitic rock which is 2.2 Petajoules (PJ) ( $10^{15}$  joules) per degree Celsius per cubic kilometre. In other words, it would take 2.2 PJ of thermal energy to heat a cubic kilometre of granite by 1 degree Celsius. Alternatively, cooling the same cubic kilometre by 1 degree Celsius would liberate 2.2 PJ of thermal energy.



Within GELs 97 and 98, there is a 1,000 cubic kilometre slab of granite between 3,600 metres and 5,000 metres deep. Based on the prior temperature measurements, this block has an interpreted temperature of 290°C at its bottom, and 250°C at its top. Taking a slab of granite 1km thick with an average temperature of 270°C and cooling it to 140°C would provide 286,000 Petajoules of thermal energy. This is the thermal energy equivalent of:

- ✓ 50 billion barrels of oil (by comparison, total Australian oil reserves are 2.9 billion barrels), or
- ✓ 10.3 billion tonnes of hard coal (total Australian coal reserves are 47 billion tonnes).

These numbers demonstrate the enormous geothermal potential of the tenements. This is why this HDR geothermal resource can be classified as a world-class, high-grade HDR geothermal area.

To realise Geodynamics' overall objectives, only a small portion of this potential is required.

For example, based on our economic modelling, a surface area of less than 5 kilometres square is required to generate 1000 MWe (equal to the average size coal fired power station) for 25 years. This is only 2.5% of the total area of Geodynamics' two tenements GELs 97 and 98.

#### Hunter Valley Project

##### Tenements

Geodynamics holds two tenements in NSW, both in the Hunter Valley close to where much of NSW's electricity is generated from coal. The Muswellbrook tenement (EL 5560, 290 km<sup>2</sup>) was granted to Pacific Power on 23 February 1999 for a period of five years. It was the first geothermal tenement issued in Australia. Geodynamics signed an agreement to purchase the tenement on 26 November 2001, after exploration expenditure by Pacific Power of approximately \$2 million. The tenement was transferred to Geodynamics on 28 May 2002. Geodynamics secured the adjacent Bulga tenement (EL 5886, 200 km<sup>2</sup>) to the SSE of the Muswellbrook tenement on 21 August 2001 for a period of 2 years.



### Geology

The Bulga and Muswellbrook tenements are adjacent licences in the heart of the Hunter Valley coal district. They are both based on the coincidence of relatively high temperature gradients determined from wells in Permian coal measures, and discernably low gravity readings relative to the surrounding area. These two features combined are suggestive of buried granite below the Sydney Basin.

### Previous Exploration

The Muswellbrook Licence was the site of initial interest in the area where two coal seam methane wells drilled by Pacific Power in 1991 and 1993 gave temperature gradients of more than 60°C/km. The area has received approximately \$2 million worth of HDR exploration including a grant of \$790,000 from the Australian Greenhouse Office under their Renewable Energy Commercialisation Program. The grant was awarded jointly to Pacific Power and The Australian National University.

A drilling program indicated that temperature gradients in the Upper Coal Measures are in the vicinity of 50°C/km across the area, with the highest gradient, 57°C/km measured in August 2000, in the well Randwick Park 1. A deeper well, PPHR1, completed in January 2001, approximately 2.1 km NNW of Randwick Park 1, gave a temperature gradient of 50°C/km in the coal measures and 32°C/km in underlying basalt.

At the completion of drilling PPHR1, a seismic survey was run approximately east-west through the drill site. Gravity measurements were taken along the line at 150m intervals indicating an area of low gravity of about 2 milligals approximately 11 km across. Interpretation of the seismic data indicated that a sequence of layered rocks is present beneath the basalt, and that a likely depth to any possible granite body is 5 km.

The Bulga licence area has a number of coal exploration drill holes defining the top 700m of the geology, including two wells with temperature gradient measurements. These approximate 50°C/km, similar to the gradients at Muswellbrook. The gravity low, originally defined by five regional gravity stations in the area, has since been much better defined by Geodynamics, with an additional 180 stations measured.



Location of Hunter Valley HDR Geothermal Exploration Licences.



**Muswellbrook Licence** has received approximately \$2 million worth of HDR exploration including a grant of \$790,000 from the Australian Greenhouse Office

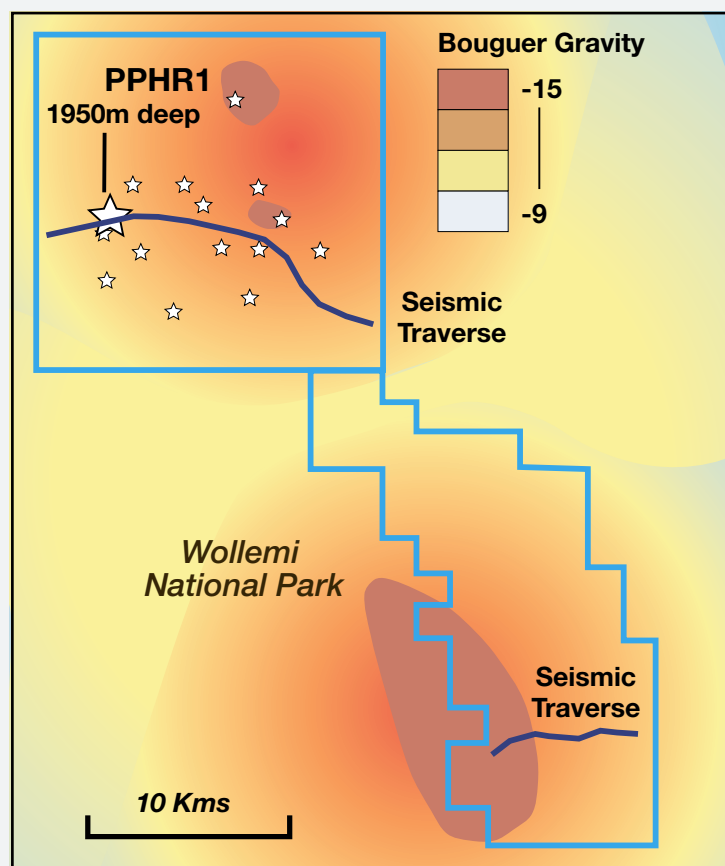
Geodynamics carried out an eight-kilometre long vibroseis seismic survey across the eastern side of the Bulga gravity low in September 2001. Interpretation of the results indicate that the sedimentary sequence dominated by coal measures is approximately 2,000 metres thick, considerably thicker over the gravity low than at Muswellbrook, but the basalt layer is about the same thickness (1,700 metres) as at Muswellbrook. Layered rocks beneath the basalt are not indicated, in contrast to Muswellbrook. This suggests that any potential granite body may be close to 4kms in depth and that the high temperature gradients in the coal measures should extend deeper than at Muswellbrook.

#### **Geothermal Gradients and Stress Conditions**

Temperature gradients so far determined, are lower in the Hunter Valley, than in the Cooper Basin tenements, but are well above normal crustal temperature gradients. Exploration in the Hunter Valley is based on potentially similar geology to that found in the Cooper Basin tenements (HHP granite of Carboniferous age buried beneath insulating Permian coal measures). The site is ideally situated close to large energy markets. Overlying sedimentary rocks are thinner than in the Cooper Basin, and until deep drilling is carried out, the presence of buried granite is unproven.

Results from a large number of stress determinations carried out up to a depth of 1000 metres by CSIRO, indicate that the minimum principal stress is vertical in the Hunter Valley, the favoured condition for horizontal hydraulic fracture development in rocks at similar depths.

Until further exploration is carried out to prove the presence of granite at 4-5km depth, and to determine temperature at the top of such a granite, it is premature to estimate the resource potential.



**Location of gravity anomalies in the Hunter Valley Licences.**  
Stars = drill hole locations





## Wells with temperature gradients of more than 50°C per kilometre

### **Eromanga Project**

#### ***Tenement***

The Queensland Department of Natural Resources and Mines has accepted an application by Geodynamics (EMP 13583, 3400 km<sup>2</sup>) over an area of potentially prospective geothermal resources in Queensland. The application is currently pending subject to changes in resource legislation.

#### ***Geology***

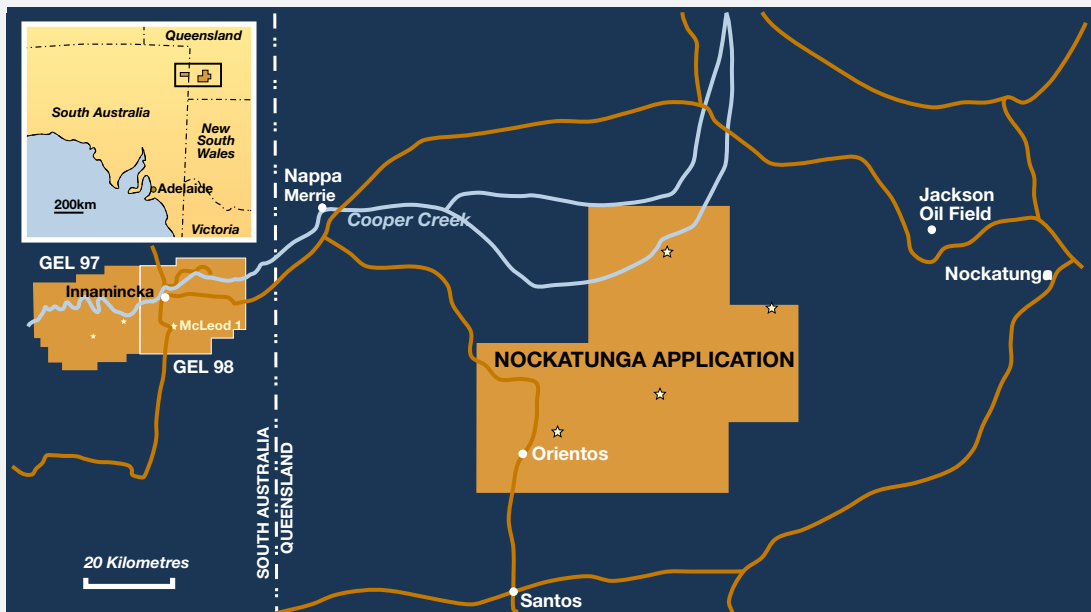
The Nockatunga application area is approximately 100 km east of Innamincka, and is based on a gravity low. A number of wells in the vicinity returned temperature gradients of more than 50°C per kilometre. Cooper Basin sediments, including coal measures, in this area have been intersected down to 2,000 metres in the south of the area and 2,900 metres in the north in the structural zone of the Cooper Basin known as the Wilson Depression.

#### ***Previous Exploration***

There have been 47 petroleum exploration wells drilled in the area. Three wells about 2,300 metres deep in the centre of the area where the gravity values are the lowest have temperature gradients of 47, 48 and 49°C per kilometre. However, these wells did not penetrate the basement. Wells to the south east of these have higher temperature gradients of 55°C per kilometre. However, these wells intersected basement at a relatively shallow depth of around 2,000 metres.

#### ***Geothermal Gradients and Stress Conditions***

If there was found to be a temperature gradient in the sedimentary sequence of 50°C per kilometre, and HHP granites at 2.8 km depth, a temperature of approximately 200°C could be present at 4,100 metres depth. There are some indications that reverse faulting stress conditions present in the Nappamerri Trough of the Cooper Basin in South Australia continue east to the Nockatunga application area.



Location of Nockatunga HDR Geothermal Licence Applications.  
Stars = drill hole locations

HDR geothermal energy is an inexhaustible resource

Clean sustainable energy is our product

Emission-free energy - a critical development for the future

- 
- A glowing lightbulb is centered on a green background. The lightbulb's filament is illuminated, casting a warm glow. A red rectangular box is overlaid on the right side of the image, containing a table of contents. The text in the box is white. A large, faint red watermark of a stylized sun or flower is visible in the background of the red box.
- 05 Independent Expert Reports
  - 06 Financial Information
  - 07 Independent Accountant's Report
  - 08 Risk Factors
  - 09 Material Contracts
  - 10 Additional Information
  - 11 Authorisation
  - 12 Glossary
  - 13 Application Form

## Section 05-13

## Section 05

# Independent Expert Reports

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# hetherington

Exploration & Mining Title Services Pty. Ltd.  
ABN 64 003 122 996

GEO02-029  
GEODYNAMICS LIMITED  
INDEPENDENT EXPLORATION TITLES REPORT

## 1. INTRODUCTION

### 1.1 Scope of Instructions

The following report has been prepared independently and in compliance with the Valmin Code. The report has been prepared for the purpose of inclusion in a Prospectus to be dated on or about 6 August 2002 for the offer of 23,000,000 Shares in the Company to raise \$11,500,000 with a provision for oversubscriptions of up to 8,000,000 Shares to raise up to an additional \$4,000,000.

Hetherington Exploration & Mining Title Services Pty Ltd has been instructed by Geodynamics Limited ("the Company") to conduct searches of and outline the rights conferred by the exploration tenements and application which are either held by or applied for by the Company or are in the process of being transferred to that company, as set out in the table on pages 35 of this Prospectus (collectively referred to as "the exploration titles").

Furthermore, Hetherington Exploration & Mining Title Services Pty Ltd has been instructed to comment on encumbrances and any other issues affecting the rights of the Company with respect to the exploration titles. The Company has specifically instructed Hetherington Exploration & Mining Title Services Pty Ltd to not address the issue of Native Title in this report.

### 1.2 Qualifications

Russell Hetherington has approximately twenty five years experience in exploration and mining tenement management across Australia. Russell Hetherington is a member of the Australian Mining and Petroleum Lawyers Association and a member of the Business Law Section of the Law Council of Australia.

### 1.3 Independence

Hetherington Exploration and Mining Title Services Pty Limited is independent from the Company within the meaning of the Valmin Code. Hetherington Exploration and Mining Title Services Pty Limited's costs of preparing this report have been calculated at its normal charge out rate.

### 1.2 Information Sources

The information forming the basis of this report has been obtained from public information registers held by relevant statutory authorities.

## 2. COMMENTARY ON THE EXPLORATION TITLES

### 2.1 New South Wales

#### 2.1.1 Background

Both Exploration Licences Nos 5886 and 5560 have been granted in respect to geothermal energy.

Access on to land must be agreed with the landholder or arbitrated. Compensation must be paid to the landholder, as agreed or arbitrated.

#### 2.1.2 Aboriginal Sites

There are 776 Aboriginal sites within Exploration Licences Nos 5886 and 5560. The sites are registered on the Aboriginal Site Registry of the National Parks and Wildlife Service. It is an offence to knowingly destroy or damage a relic without the consent of the National Parks and Wildlife Service ("the NPWS") (Section 90 National Parks and Wildlife Act 1974 (NSW) (the "NPW Act")).

#### 2.1.3 Royalty

No royalty is payable on geothermal energy extracted for exploration purposes.

#### 2.1.4 Exclusions

The Licence documents exclude land vested in the Commonwealth of Australia and land subject to any National Park, historic site, nature reserve, state game reserve or Aboriginal area at the date of these Licences. There is no National Park overlapping these Licences. Time does not permit an investigation into whether there is any land vested in the Commonwealth of Australia, historic site, nature reserve or state game reserve, or Aboriginal area although these are most unlikely to be significant.

#### 2.1.5 Exploration Licence No 5560

##### (a) General Comments

The Licence is overlapped by the Plashett Prescribed Dam Area. In either obtaining further approval for exploration (as envisaged by the Licence conditions), or in seeking approval for mining, it is highly likely that such activities will be subject to any conditions imposed by the Dam Safety Committee.

There are 14 overlapping tenements and one overlapping application. These relate primarily to the exploration for or

mining of coal. There is one overlapping tenement which relates to the exploration for petroleum.

EL 5560 co-exists with 6 of the abovementioned tenements. Any disputes between co-existing tenement holders may be referred to the Warden or the Minister for resolution under the relevant legislation.

There are a number of significant exclusions to EL 5560 caused by the existence of a number of Mining Leases within its perimeters. Those Mining Leases have various surface exceptions and depth restrictions, that is, they apply to some strata within the relevant land but not others. The result is that EL 5560 applies to some strata and not others.

*(b) Licence Conditions*

The licence conditions relate to environmental management of exploration; rehabilitation of affected land; technical, environmental and approval requirements for drill holes deeper than 1,000 metres; consultation with holders of overlapping coal exploration licences; and lodgement of security of \$30,000 (this has been lodged).

*2.1.6 Exploration Licence No 5886*

*(a) General Comments*

There are 16 overlapping tenements. These relate primarily to the exploration for or mining of coal. There are two tenements which relate to the exploration for petroleum.

EL 5886 also co-exists with 5 of the abovementioned tenements. Any disputes between co-existing tenement holders may be referred to the Warden or the Minister for resolution under the relevant legislation.

As with EL 5560, there are significant exclusions to EL 5886 caused by the existence of a number of Mining Leases within its perimeters with the result that EL 5886 applies to some strata and not others.

No expenditure commitment has fallen due yet.

*(b) Licence Conditions*

The licence conditions relate to environmental management of exploration; rehabilitation of affected land; restrictions on activities in certain areas; the requirement for prior approval of drilling operations; technical, environmental and approval requirements for drill holes deeper than 1,000 metres; consultation with holders of overlapping coal exploration licences; and lodgement of security of \$10,000 (this has been lodged).

## **2.2 South Australia**

### *2.2.1 Powers under the Exploration Licences*

Geothermal Exploration Licences Nos 97 and 98 (GELs 97 and 98) have been granted to allow exploration for geothermal energy only. The Licences can only be renewed for one further term, as they fall within a "highly prospective region". (Section 26 of the Petroleum Act 2000 (SA)). The maximum term of the Licences is 5 years plus up to a further 5 years if the Licences are renewed. Upon renewal at least 50% of the original Licence area must be excised.

### *2.2.2 Royalties*

Pursuant to Section 43 of the Petroleum Act 2000, no royalty is payable on geothermal energy extracted and undissipated, which includes geothermal energy detected during exploration.

### *2.2.3 Fees*

Annual fees of \$2,200 are payable in respect to each of the Licences.

### *2.2.4 Land Issues*

Both Licences are located over Crown Lease No 162552 held by Innamincka Pastoral Co Pty Ltd. GEL 97 is also located over Crown Lease No 133338 held by Doce Pty Ltd. GEL 98 is also situated over a small area of land allocated as the Innamincka township. The Innamincka township is comprised of various parcels of freehold land and some crown land held by the Minister for Environment and Planning.

The holder of the Geothermal Exploration Licences must give written notice to the Crown Lessees prior to entry onto land for exploration, although once notice of entry has been given, a further notice is not necessary unless the activities to be carried out differ significantly from the activities described in the previous notice (Section 61 Petroleum Act 2000). An occupier of land other than a pastoral lessee has a right to object to entry (Section 62 Petroleum Act 2000). It is not clear if a Crown Lessee is a "pastoral lessee" or not, as these terms are not defined in the Petroleum Act 2000. In any event, the occupier's right of objection does not amount to a right of veto, but merely to have the matter arbitrated by the Minister or determined by the Warden's Court, in respect to the terms upon which exploration may proceed.

While notification of exploration only needs to take place in respect to occupiers, it is necessary to compensate each owner of land, either by agreement or by court order. This is defined in the Petroleum Act 2000 as every person with a registered interest in the land (such as Crown Lessees and their mortgagees) and any person who holds Native Title in the land.



#### 2.2.5 *Overlapping Petroleum Titles*

GELs 97 and 98, are entirely overlapped by 11 petroleum titles also granted under the Petroleum Act 2000 (SA).

Under the Petroleum Act 2000, if the holder of a GEL discovers a geothermal resource within the Licence area which is commercially feasible then that holder is entitled to the grant of a geothermal Production Licence. However, before a Production Licence can be granted, the Minister must consult with the holders of the existing Petroleum Production Licences.

#### 2.2.6 *Heritage Issues*

The Innamincka/Cooper Creek State Heritage Area is registered on the State Heritage Register. The Heritage Area incorporates one kilometre on either side of Cooper Creek between longitude 140° 30' and longitude 141° and includes a number of waterholes and remnant buildings in the Innamincka township.

Under the Heritage Act 1993 it is an offence to intentionally damage the State Heritage Area so as to destroy or reduce its heritage value, except if the damage results from operations authorised under the Petroleum Act 1940 (SA) and presumably the Petroleum Act 2000. The subject Licences do not include any conditions restricting operations with respect to heritage sites.

#### 2.2.7 *Coongie Lakes Ramsar Area*

The Licences fall partially within the Coongie Lakes Ramsar Area registered with the Commonwealth Department of the Environment. Within the Ramsar Area the Commonwealth Environment Protection and Biodiversity Act 1999 (Cth) will apply in respect to actions which have a significant impact on the Ramsar Wetlands. Those actions must be referred to the Commonwealth Environment Minister who will decide if those actions should be assessed by the Commonwealth or the State. The Commonwealth Environment Minister must consider any items listed on the National Estate Register. Those items are Burke's Memorial, the Innamincka Historical Reserve and the Cooper's Creek Floodplain.

#### 2.2.8 *Environmental Management*

The Petroleum Act 2000 requires the lodgement of an Environmental Impact Report and a Statement of Environmental Objectives in respect to the Licences. The Environmental Impact Report ("EIR") identifies the risks involved in carrying out the activities pursuant to the Exploration Licence. The Statement of Environmental Objectives ("the SEO") sets out how the Licence holder will address the risks identified in the EIR. PIRSA has advised that no EIR or SEO has yet been lodged in respect to geothermal exploration for either GEL 97 or GEL 98.

#### 2.2.9 *Aboriginal Heritage Sites*

There are Aboriginal Heritage Sites within the Licence perimeters. It is an offence to damage or disturb any Aboriginal site, object or remains without the authority of the Minister. The Company advises that it intends to carry out an aboriginal cultural and heritage survey of the area near the proposed HDR #1 well.

#### 2.2.10 *Geothermal Exploration Licence No 97*

##### (a) *General Comments*

Primary Industries and Resources SA advises that there are no outstanding expenditure or reporting requirements attached to this Licence.

##### (b) *Licence Conditions*

Under the licence conditions, there is a detailed and strict timetable for operations which if not complied with may lead to cancellation of the licence; cooperation with petroleum exploration is necessary; and the Licensee must maintain a security of \$50,000 (PIRSA will only require this security deposit once the company commences drilling and other associated works on the licence area).

#### 2.2.11 *Geothermal Exploration Licence No 98*

##### (a) *General Comments*

Primary Industries and Resources SA advises that there are no outstanding expenditure or reporting requirements attached to this Licence.

##### (b) *Licence Conditions*

Under the licence conditions, there is a detailed and strict timetable for operations. The operations culminate in the construction of a power station and production wells. The total expenditure at the end of 5 years must be in the order of \$48,365,000. Non compliance with this expenditure program may result in cancellation of the Licence. In addition, the licence conditions require the licensee to co-operate with petroleum exploration and the licensee to maintain a security of \$50,000 (PIRSA will only require this security deposit once the company commences drilling and other associated works on the licence area).

## 2.3 Queensland

### 2.3.1 Background

Exploration Permit for Minerals No 13583 ("EPM 13583") is an application lodged for the purposes of exploring for geothermal energy. A permit period of 5 years was sought. No power currently exists under the Mineral Resources Act 1989 (QLD) for an EPM for geothermal energy. However, the office of the Minister for Natural Resources and Mines advises that while there is a current lack of legislative power to grant the EPM, it is the Minister's intention to ensure that the Company retains priority to the relevant ground. The precise mechanism through which this will take place has yet to be determined. This report is based on the assumption that the Company will obtain some kind of tenure allowing exploration for geothermal energy.

### 2.3.2 Environmental Matters

An application for a standard Environmental Authority was lodged with the application on 19 October 2001. Geodynamics Limited agreed to comply with the Code of Environmental Compliance for Exploration and Mineral Development Projects. Upon grant, the conditions of the Code will become the conditions of the Environmental Authority for the tenement. It would normally be expected that exploration activities would attract a standard Environmental Authority.

If there are any Environmentally Sensitive Areas within the permit area, exploration within those areas may be forbidden or restricted.

At the time this report was prepared the application for the Environmental Authority had not been referred to the Environmental Protection Agency for assessment. A draft Environmental Authority had not been issued.

### 2.3.3 Rehabilitation Matters

There are no relevant rehabilitation matters as EPM 13583 is an application.

### 2.3.4 Petroleum Tenures

There are overlapping Pipeline Licences, Petroleum Leases and an Exploration Permit for Petroleum. Upon grant of EPM 13583, the areas covered by the current Pipeline Licences and Petroleum Leases will be automatically excluded from EPM 13583 and exploration activities conducted on the overlapping Exploration Permit for Petroleum may from time to time affect exploration activities on EPM 13583.

### 2.3.5 Other Encumbrances

The public records do not indicate any material agreements and contracts, development plans, sales contracts, joint venture agreements, project permits, environmental, access or other legal or statutory requirements applicable to EPM 13583.

### 2.3.6 Issues to be Addressed Prior to Future Exploration

The normal procedures of the Department of Natural Resources and Mines and the Environmental Protection Agency must be complied with prior to grant.

There is a statutory requirement to relinquish 50% of the sub-blocks at the end of year two, with further 50% reductions at the end of years three, four and five, although it is possible to apply for an exemption from relinquishment. The application is for a five year term, however an application to renew the permit can be lodged not more than three months prior to the expiry date.

### 2.3.7 The Amount and Timing of Any Taxes and Royalties

At the time of grant, the Company will be required to lodge a security deposit as assessed by the Environmental Protection Agency and the Department of Natural Resources and Mines, and also pay the annual rental. At this stage the security deposit amount has not been calculated. The annual rental is payable within one month of the grant date, currently at the rate of \$104.35 per sub-block, therefore if the application progresses to grant with 1150 sub-blocks, the first annual rental payment will be \$120,002.50. Annual rental is based on the number of sub-blocks to be held for the year, with payment due on the first anniversary of the grant date.

The approved future expenditure commitments will be stipulated in the proposal and grant documents. Once granted EPM 13583 will not at any stage be subject to local government rates or state government royalty.

### 2.3.8 Liabilities, Actual and Contingent Commitments and Financial Exposure.

The work program and expenditure commitment submitted with the application for EPM 13583 was \$6,605,000 over 5 years. The actual expenditure commitment will not be known until the permit is proposed and granted.

The environmental rehabilitation liability will not be known until the Environmental Protection Agency issue a draft Environmental Authority.

**RUSSELL HETHERINGTON**  
Sydney Office  
1 May 2002

Our ref: 2203613  
21 June 2002

Dr Bertus De Graaf  
Managing Director  
Geodynamics Limited  
Level 2  
349 Coronation Drive  
MILTON QLD 4064

Dear Sir



### Native Title Report

This letter has been prepared for inclusion in a prospectus (**Prospectus**) to be issued by the Company and dated on or about 6 August 2002 to raise \$11,500,000 by the issue of 23,000,000 fully paid ordinary Shares in the Company at an issue price of \$0.50 per Share with a provision for oversubscriptions of up to 8,000,000 Shares to raise up to an additional \$4,000,000.

## Our instructions

- 1 We are instructed that the Company is the beneficial owner of the following tenements (**Tenements**)

Tenement	State	Area (sq km)	Holding	Grant Date	Expiry Date	Region
Innamincka GEL 98	SA	494	100%	02/10/01	4 years	Cooper Basin
Bulyeroo GEL 97	SA	491	100%	14/11/01	5 years	
Bulga EL 5886	NSW	200	100%	21/08/01	2 years	Hunter Valley
Muswellbrook EL 5560	NSW	300	100%	23/02/99	2 years	

- 2 In addition, we are instructed that the Company has made an application for the grant of the following exploration permit (the **EPM Application**):

Nockatunga EPM 13583	QLD	3400	100% (pending)	Pending	N/A	Eromanga Basin
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- 3 We are instructed to report on the native title implications for the Company arising out of the grant of the Tenements and the impact on the Company's proposed activities to be carried out under the Tenements.
- 4 We have not been instructed to and do not express any opinion on:
- 4.1 the validity of the Tenements or the EPM Application except from a native title perspective. We note that a separate report by Hetherington Exploration and Mining Titles Services Pty Ltd has been obtained in relation to the Tenements and EPM Application generally;
- 4.2 indigenous cultural heritage issues, environmental issues or vegetation clearing issues arising out of the activities which the Company carries out or proposes to carry out on the Tenements or the EPM Application.
- 5 Our opinion must also be read subject to the qualifications and assumptions set out in paragraphs 45 - 48 of this letter.

## Summary of report findings

- 6 The following native title claims have been made in relation to all or part of the lands covered by the Tenements or the EPM Application:

Tenement	Native title claim	Status	Date of search
Innamincka GEL 98 and Bulyeroo GEL 97	Yandruwandha/Yawarrawarrka Native Title Claim Group	No. SC98/1 - accepted for registration	02/04/02
	The Dieri Native Title claim group	No. SC95/2 - not yet been accepted for registration	
Bulga EL 5886 and Muswellbrook EL 5560	Wonnarua Tribal Council #1 Native Title Claim Group	No. NC95/8 - accepted for registration	02/04/02
	Mimaga Wajaar Traditional Custodians Wanuruah Claim Native Title claim group	No. NC01/1 - not yet been accepted for registration	

Nockatunga EPM 13583	Wangkumarra People #2 Native Title Claim Group	No. QC99/29 - accepted for registration	02/04/02
	Kullilli People Native Title claim group	No. QC00/3 - not yet been accepted for registration	

- 7 The South Australian Geothermal Exploration Licences Nos. 97 and 98 (**GELs**) have been granted by the Department of Primary Industries and Resources South Australia on the basis that the applicable native title legislation does not apply to the grant of a GEL because the grant of a GEL is not a future act which creates a 'right to mine'. In our opinion, that is a sustainable position although it would be open to a Court to reach a different conclusion.
- 8 In our opinion, none of the New South Wales Tenements are invalid for native title purposes or attract the relevant right to negotiate provisions in the Native Title Legislation.
- 9 Subject to our comments in paragraphs 23, 24 and 25 and the Company complying with its obligations in relation to its access to land covered by the Tenements (as summarised in paragraphs 10, 11, and 12), we do not believe that native title issues will pose any material impediment to the proposed exploration for geothermal energy by the Company in the Tenement areas.
- 10 In South Australia, the registered native title group claimants must be given the same rights as are given to all ordinary titleholders including prior notice of:
  - 10.1 entry onto their native title claim lands;
  - 10.2 activities to be undertaken under the relevant Tenement; and
  - 10.3 any material change of activity.
- 11 In New South Wales, the Company must enter into agreed or arbitrated access arrangements with the registered native title group claimants prior to any work commencing under the Exploration Licences Nos 5886 and 5560 (**ELs**).
- 12 In Queensland, if a low impact exploration permit is issued, the Company must notify the registered native title group claimants and undertake consultation with them prior to any working commencing under any exploration permit issued. If a high impact exploration permit is issued or proposed to be issued, the right to negotiate procedures must be followed.
- 13 The Company will require for its commercialisation activities the grant of new tenements beyond the tenements for exploration purposes currently granted. The right to negotiate provisions under the relevant Native Title legislation may apply in South Australia and will apply in New South Wales and in Queensland in relation to the grant or proposed grant of such new tenements. An alternative procedure of an indigenous land use agreement (ILUA) is also available.

## Detailed report

### Native title generally

- 14 The existence of native title is now recognized as part of the common law of Australia as a result of the 1992 decision of the High Court of Australia in *Mabo & Ors v The State of Queensland* (No. 2) (1992) 175 CLR 1.
- 15 Relevantly, there is Commonwealth, South Australian, New South Wales and Queensland legislation dealing with native title, namely:
  - 15.1 Native Title Act 1993 (Cth) - substantially amended in 1998 in response to the Wik decision - (the **Commonwealth NT Act**);
  - 15.2 Native Title (South Australia) Act 1994 (SA) (the **SA NT Act**);
  - 15.3 Native Title (New South Wales) Act 1994 (NSW) (the **NSW NT Act**) and the Mining Act 1992 (NSW) (the **NSW Mining Act**);

15.4 Native Title (Queensland) Act 1993 (Qld) (the **Qld NT Act**) and the Native Title (Queensland) State Provisions Amendment Act 1999 (Qld) (the **Qld ASP Act**).

(collectively called the **Native Title Legislation**)

- 16 Native title rights in respect of any particular land must be established according to the laws and customs of Aboriginal people who can demonstrate an ongoing connection with the land. Even if native title rights to particular land can be established, such native title may have been extinguished under common law principles or by virtue of the Native Title Legislation.
- 17 Certain acts that take place after 24 December 1996 (such as the granting of certain mining tenures) are called 'future acts' under the Native Title Legislation.
- 18 If a future act which has an impact on land subject to native title or a native title claim, occurs or is proposed to occur, then certain provisions in the Native Title Legislation apply in relation to the future act and the proposed use of the land under the future act. These provisions include the 'right to negotiate' provisions which impose an obligation on all parties to negotiate in good faith with a view to obtaining an agreement of the native title parties to either the doing of the act or the doing of the act subject to conditions. Relevantly, the right to negotiate provisions are triggered if a 'future act' creates a 'right to mine' as that expression is defined in the Commonwealth NT Act. A future act can also be validated by the parties negotiating an ILUA instead of undertaking the right to negotiate process.
- 19 Failure to follow the relevant Native Title Legislation provisions will result in future acts being invalid for native title purposes.
- 20 In broad terms, registered native title claimants are also entitled to claim compensation on 'just terms':
  - 20.1 In South Australia, if compensation would be available to any person holding 'ordinary' title to the land affected by the relevant Tenement as a result of the activities conducted by the Company under the Tenement;
  - 20.2 In New South Wales, for any compensable loss caused or likely to be caused by the exercise of rights conferred by the relevant EL, the access arrangements under the EL or any upgrade of the EL to a 'new' tenement; and
  - 20.3 In Queensland, for activities carried out under any exploration permit issued, or any upgrade of that exploration permit, that affect their native title rights and interests.

#### Cooper Basin tenements (South Australia) – GELs 97 and 98

- 21 The GELs were granted under the South Australian Petroleum Act 2000. There is currently no South Australian State-based native title legislative scheme for licences granted under that Act (unlike, for example, tenements granted under the South Australian Mining Act 1971). Accordingly the Commonwealth NT Act applies.
- 22 Based on the present state of the law, we are instructed that results of title searches carried out show that while there has been some extinguishment of native title in the area covered by the GELs, the majority of the land continues to be potentially subject to native title. The native title rights exercisable over the GELs' may be limited, however, if the recent Full Federal Court decision in *Western Australia v Ward* is upheld and applied in South Australia. It was held in that case that native title to minerals or petroleum was validly extinguished by the reservation to the Crown of all ownership interests in minerals and petroleum under relevant Western Australian resources legislation. Additionally, the valid grant under relevant Western Australian resources legislation of a mining lease or a petroleum lease restricted the ability to exercise on the lease area native title rights inconsistent with the extractive operations authorised by the lease.
- 23 GELs have been granted by the Department of Primary Industries and Resources South Australia on the basis that the applicable native title legislation does not apply to the grant of a GEL because the grant of a GEL is not a future act which creates a 'right to mine'. In our opinion, that is a sustainable position although it would be open to a Court to reach a different conclusion.
- 24 Relevantly, in the Commonwealth NT Act 'mine' is defined to include to 'explore or prospect for things that may be mined....or extract petroleum or gas from land...'. Geothermal energy is not 'petroleum or gas'. Further, we are instructed that geothermal energy is not something which is 'mined' because the exploration, release and use of geothermal energy does not involve the extraction of physical material, but the transfer of energy, in the form of heat, to an introduced medium, in this case, water. Accordingly, on a strict interpretation of the meaning of 'mine', the Company's proposed activities on the GEL do not constitute mining and the grant of a GEL does not create a 'right to mine' for native title purposes.
- 25 Despite the above, we think that it would be open to a Court to find that the meaning of 'mine' is not limited to the specific examples given in the definition and that its ordinary meaning, having regard to the statutory purpose and intention of the Commonwealth NT Act includes the exploration for or release of geothermal energy.

- In addition, there is a risk that the legislation itself might be changed so that the grant of a GEL constitutes a future act which creates a right to mine. If either of these events occurred, then the grant of the GELs would be invalid for native title purposes as the applicable right to negotiate or ILUA procedure has not been followed. The legal impact of such a finding would be that the Company would either have to re-apply for the grant of new GELs and comply with the right to negotiate procedure in the Commonwealth NT Act in relation to its new applications or negotiate an ILUA with interested indigenous groups.
- 26 The Company is required to give to any occupier of the land covered by the GELs including any registered native title claimants the same rights as are given to all ordinary titleholders including prior notice of:
- 26.1 entry onto their native title claim lands;
- 26.2 activities to be undertaken under the relevant Tenement; and
- 26.3 any material change of activity.
- 27 This is because activities conducted under a GEL pass the 'freehold test' set out in the Commonwealth NT Act and attract the provisions of section 24MD(6A) of that Act.
- 28 Acts that pass the 'freehold test' are ones:
- 28.1 that apply in the same way to native title holders as if they were 'ordinary' title holders to the land; or
- 28.2 where the effect of the act on native title does not put native title holders in a more disadvantageous position at law than they would be in if they were 'ordinary' title holders instead.
- 29 The Company will require for its commercialisation activities the grant of a new retention licence or production licence under the South Australian Petroleum Act 2000. The same considerations in paragraphs 23, 24 and 25 will apply in relation to any grant or proposed grant of those licences and there is a risk that the right to negotiate provisions under the Commonwealth NT Act will apply in relation to the grant or proposed grant of those new licences.

#### **Hunter Valley tenements (New South Wales) - ELs 5886 and 5560**

- 30 The NSW NT Act provides that the NSW Mining Act applies to procedural requirements relating to native title where 'mining activity' is concerned.

- 31 For the purposes of this report, we have been instructed to assume that native title to the land covered by the ELs (if it is found to exist) has not been extinguished. We have not carried out all the necessary searches to verify this nor have we considered the potential application or impact of *Western Australia v Ward*.
- 32 Under section 99 of the NSW NT Act, activities conducted under the ELs are not subject to the right to negotiate procedure in the Commonwealth NT Act.
- 33 However, ELs are subject to the condition that the Company must enter into an access arrangement with each registered native title claimant prior to the carrying out of any exploration operations the subject of the ELs. The terms of those access arrangements are to be determined by agreement between the Company and the registered native title claimants or, failing agreement, by an arbitrator appointed pursuant to sections 143 or 144 of the NSW Mining Act. We are instructed that no such access arrangements have been entered into.
- 34 The Company may require for its commercialisation activities the grant of new tenements beyond the ELs currently granted. The right to negotiate or ILUA provisions under the Commonwealth NT Act will apply in relation to the grant or proposed grant of such new tenements.

#### **Nockatunga (Queensland) - EPM Application**

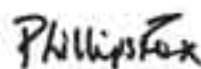
- 35 We are instructed that the EPM Application is under consideration but has not yet been granted. We are further instructed that the Company has been advised by the Queensland Department of Natural Resources and Mines that:
- 35.1 the grant of exploration permits generally to explore for geothermal energy is outside the scope of existing Queensland legislation including the Petroleum Act 1923 and the Mineral Resources Act 1989;
- 35.2 statutory changes will need to be made before any such geothermal exploration permits can be granted generally; and
- 35.3 a new application (**New Application**) will need to be made by the Company under the new statutory regime (although as an administrative matter, we are instructed that the Company's application date and priority will be preserved) for the new type of geothermal exploration permit.
- 36 Any new legislation may include provisions relating to the native title implications of the grant or use of the new tenure. Accordingly, our opinion below may change if new legislation is introduced and must be read subject to any such new legislation.

- 37 The Commonwealth NT Act, the Qld NT Act and the Qld ASP Act apply to the EPM Application.
- 38 The results of title searches carried out show that the majority of the land subject to the EPM Application remains potentially subject to native title. As instructed, we have not considered the potential application or impact of *Western Australia v Ward*.
- 39 If the New Application made under the new statutory regime is for 'high impact exploration', it will attract the right to negotiate or ILUA procedures in the Commonwealth NT Act.
- 40 However, if the new application made under the new statutory regime is for 'low impact exploration', we do not believe that the grant of a permit to allow this type of exploration would attract the right to negotiate procedures.
- 41 This is because:
- 41.1 Under the Qld ASP Act, a 'low impact activity', allows the exploration permit to be issued as a 'low impact exploration permit' (LIEP) for the purposes of the Qld ASP Act; and
- 41.2 Under the Qld ASP Act, LIEPs are not subject to the right to negotiate procedures.
- 42 When the Company lodges its New Application and assuming that it is for 'low impact exploration', the Company, will be required to comply with the notification requirements set out in the Qld ASP Act which apply (among other things) to LIEPs. Registered native title claimants are one of the parties who must be notified.
- 43 Under section 488(1) of the Qld ASP Act, the LIEP will be subject to the condition that the Company must consult with any registered native title claimants, for a minimum period of 2 months, prior to carrying out any activities under the LIEP. The matters about which the Company must consult are set out in section 489 of the Qld ASP Act which include (among other things) protection and avoidance of any indigenous cultural sites of particular significance to those native title claimants. Ministerial directions (in addition to any other conditions attached to the LIEP) may be given to the Company regarding matters arising from that consultation.
- 44 The Company may require for its commercialisation activities the grant of new tenements (possibly in a new statutory form separately recognising geothermal energy extraction activities) beyond exploration tenements resulting from the EPM Application or the New Application. The right to negotiate provisions under the Commonwealth NT Act, the Qld NT Act and the Qld ASP Act will apply in relation to the grant or proposed grant of such new tenements or alternatively the ILUA procedure.

#### Qualifications and assumptions

- 45 This report is given on the basis of the qualifications and assumptions set out in this letter.
- 46 Our preparation of this report relating to the above has relied upon:
- 46.1 information provided by the Company and Hetherington Exploration and Mining Titles Services Pty Ltd in relation to the areas covered by the Tenements and the EPM Application;
- 46.2 the accuracy of the information provided to us by the various registries of the National Native Title Tribunal that has been provided to us. Those searches are current as at the dates they bear. These dates are mentioned in the report; and
- 46.3 information provided by the Department of Primary Industries and Resources South Australia,
- none of which information we have sought to independently verify.
- 47 We have not carried out or caused to be carried out:
- 47.1 anthropological, legal, historical or ethnographic studies or other research to evaluate the possibility of native title rights existing in any of the areas the subject of the Tenements or EPM Application; or
- 47.2 detailed historical title searches of the underlying land to investigate whether or not there has previously been a grant of a form of tenure or land use which could have extinguished native title.
- 48 This report assumes that all of the Native Title Legislation is valid. The High Court has upheld the validity of the Commonwealth NT Act. This report also assumes that no new native title claims have been made after the date of our original searches on 2 April 2002 and that there have been no material changes to the status of each existing claim set out in paragraph 6 of this letter.

Yours sincerely



PHILLIPS FOX



14 June 2002

The Directors,  
Geodynamics Limited,  
Level 2, 349 Coronation Drive,  
Milton, Queensland, 4064

**Em. Prof. R.W.R. Rutland AO FTSE**  
**11/9 Jardine St.,**  
**Kingston,**  
**ACT. 2604**

Dear Sirs,

#### **Geodynamics Limited – Independent Geologist's Report**

##### **Introduction**

This Independent Geologist's Report has been prepared for inclusion in the Prospectus of Geodynamics Limited, to be dated on or about 6 August, 2002, for an issue of 23 million Shares at \$0.50 to raise \$11.5 million with a provision for oversubscriptions of up to 8,000,000 Shares to raise up to an additional \$4,000,000.

I have been commissioned to assess the tenement geological information contained in the Prospectus of Geodynamics Limited. Geodynamics has advised in writing that this material has been carefully researched and to the best of its knowledge is factual unless otherwise stated. I have sole responsibility for the preparation of this report and have not been involved in the preparation, authorisation or issuance of any other part of the Prospectus.

I understand that Geodynamics has satisfied itself that by virtue of my qualifications, expertise, experience, competence, professional reputation and independence I am able to prepare this Report. I have had wide experience of many aspects of Australian geology as Professor of Geology and Mineralogy at the University of Adelaide and as Executive Director of the Bureau of Mineral Resources, Geology and Geophysics / Australian Geological Survey Organisation. I was a corporate member of Aus.IMM from 1973 to 2000 but do not have direct experience in mining and petroleum exploration. Subject to these qualifications, this Report has been prepared in accordance with the relevant requirements of the Valmin Code (which covers reports concerned with mining assets).

This report has been prepared using reports and other information provided by Geodynamics Limited, and other general reference material. Geodynamics Limited has given assurance that full disclosure of all material information in its possession has been made.

Geodynamics Limited has been provided with a draft of the Independent Geologist's Report, in order to correct any matters of fact and advise of any material omissions.

I have given my consent to the inclusion of this report in the Prospectus, in the form and context in which it appears, and have not withdrawn consent prior to its issue.

##### **Summary of Conclusions**

Overall I have satisfied myself that the information contained in the Prospectus is an appropriate summary of the geological information that is material to the geothermal prospectivity of the tenements. A wealth of background research has been carried out, and effective liaison established with various relevant organisations overseas.

As the Prospectus states the target for HDR resources, outside active volcanic areas, is a high heat production (HHP) granite overlain by an adequate insulating blanket of sediments. In eastern Australia the latter requirement can potentially be met in basins containing the Permian coal measure sequences. All three projects described in the Prospectus are in such basins, and all three are based on the conjunction of above average geothermal gradients with gravity anomalies that may indicate the presence of basement granites. Such granites are well known to exhibit the characteristics of large volume, relative uniformity, and regular natural joints, which make them pre-eminently suitable as HDR reservoirs. In addition, in the Cooper Basin project, the presence of HHP granite has been firmly established. After reviewing the relevant information, I have reached the following conclusions.

##### **Cooper Basin Project**

The geological conditions in the Innamincka and Bulgeroo tenements have been shown to be exceptionally favourable, in a global context, for the development of HDR resources. The nature of the thick insulating blanket has been well established, as a consequence of the extensive petroleum exploration activity in the area. It has been possible to classify the tenement area as one in which the minimum principal stress is predominantly vertical. The vertical stress and the minimum horizontal stress have approximately similar magnitude, while the maximum (near E-W) horizontal stress is significantly greater. It is to be expected that similar stress conditions, favourable to the development of HDR reservoirs, will be present in the granitic basement.

Figure 1

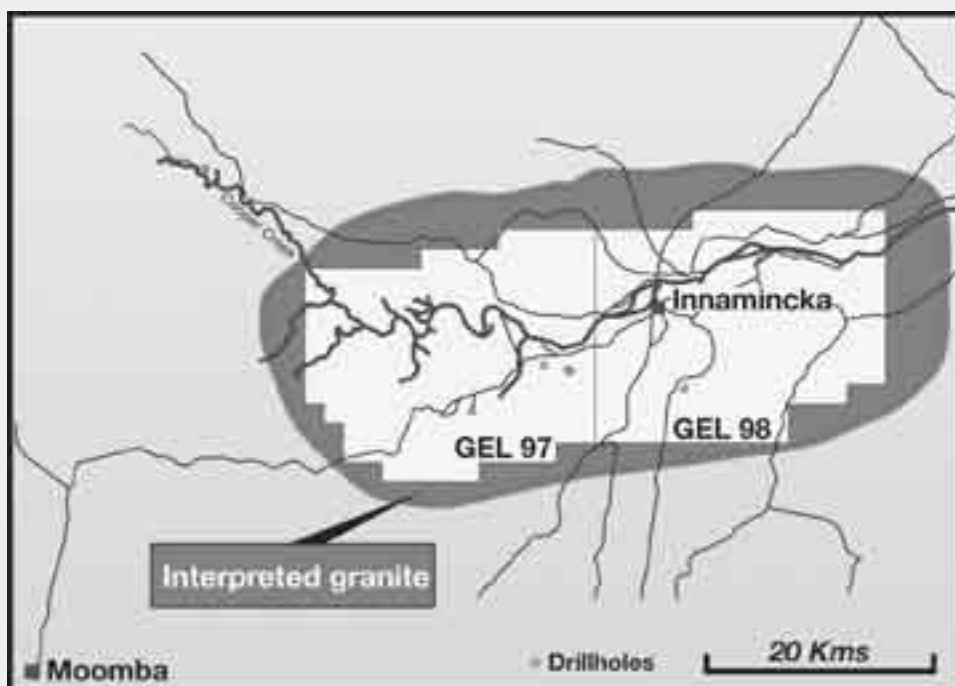


Figure 1 shows the interpreted area of granitic basement in the area of the tenements (derived from Figure 11, Geological interpretation of the Basement rock units and structure of the Cooper Basin, in Meixner, A.J., Boucher, R.K., Yeates, A.N., Frears, R.A., Gunn, P.J., and Richardson, L.M., 1999. Interpretation of Geophysical and Geological Data Sets, Cooper Basin Region, South Australia. AGSO Record 1999/22, Australian Geological Survey Organisation, Department of Industry, Science and Resources, Canberra).

The tenements were chosen by the Department of Primary Industries and Resources, SA, to coincide with areas of 'shallow' granitic basement which was inferred from three drill intersections and geophysical data to be at between 3400 and 4300 metres depth, and at extrapolated temperatures in excess of 200°C. This does not preclude the possibility of significant compositional variation in the granitic rocks over the area as a whole. In the area of Geodynamics main interest the drill data has demonstrated the presence of HHP granites, at temperatures approaching 250°C. This data is summarised in the following table taken from the Prospectus.

Well Name	Year drilled	Total Depth (m)	BHT* (°C)	Temp. Gradient (°C/km)	BH rock type
Bulyeroo 1	1994	3545	240	62.0	HHP granite
Burley 2	1984	3709	245	60.9	HHP granite
McLeod 1	1983	3812	232	55.8	HHP granite
Burley 1	1971	3650	n.d		sediments
Burley 3	1997	3098	n.d		sediments

\* BHT = Bottom Hole Temperature  
n.d = not determined

The properties of the potential thermal reservoirs can be reasonably well inferred from knowledge of the usual geological properties of granitic bodies, the known geological history (together indicating the likely presence of near horizontal joints to considerable depth), and from engineering work on granitic reservoirs carried out elsewhere. A sound basis has therefore been laid for proceeding with Stage 1 of the Business Plan, which is designed to verify the assumptions made. The precise temperature and stress conditions in the basement granite (including the geothermal gradient), and the incidence and behaviour of natural fractures (which will control the form and properties of the engineered reservoir) are to be determined at that stage.

The indicative calculation of total energy resource potential given in the Prospectus is broadly applicable, as a possible maximum, to the situation in the tenements. More conservative figures for the temperatures at top and bottom of the slab could well have been used, as in the more rigorous model of reservoir performance. The simple model used also assumes uniform thermal properties over the whole slab, whereas substantial variation may occur over the tenements. However, this is not to gainsay that there is very great geothermal potential, only a fraction of which needs to be realised in order to meet the immediate objectives of the Prospectus, and later scaled-up development.

At present the more favourable areas for realising the potential appear to be those where the depth to basement is less, and best defined by drilling, and where the temperature close to the top of the granite has been measured directly. These are in the eastern part of GEL 97 and the southwestern part of GEL 98, close to Innaminka.

#### **Hunter Valley Project**

The substantial exploration work carried out so far has done much to clarify the situation in the upper 3km of the basin sequence, but has not yet identified a target for deep drilling. The deep hole drilled as part of Pacific Power's HDR program revealed the unexpected presence of a thick basaltic member in the sedimentary sequence, thus diminishing its effectiveness as an insulating blanket. The stress conditions are again favourable with the minimum principal stress predominantly vertical, but the direction of the maximum horizontal stress varies over the region.

There is no direct information on the nature of the underlying rocks, but there is a reasonable possibility, on the basis of the regional geology, that Carboniferous granites do occur. The two seismic surveys have indicated that any granitic basement is probably at least 5km deep in the Muswellbrook tenement, but may be as shallow as 4km in the Bulga tenement.

As the Prospectus concludes it is premature to estimate resource potential until the presence of granitic basement at a depth of 4 to 5km has been proved.

#### **Eromanga Project**

The Eromanga project area exhibits broadly similar geology to the Cooper Basin area to the west. Again there is a large amount of relevant information available from petroleum exploration, but a specific HDR program has yet to be initiated.

The evident lack of a simple correlation between the negative gravity anomaly and depth to basement needs to be further explored, in order to link the possible presence of granitic basement with an appropriate thickness (close to 3km) of insulating sediments. It is possible that any granite present may be of different age and character from that in the Cooper Basin project area. Again it is premature to make estimates of resource potential.

The focus of the Prospectus is clearly on the pilot reservoir engineering program to demonstrate the viability of the geologically outstanding Cooper Basin project. Modest exploration expenditure in the other two projects aimed at identifying and assessing the best targets for future exploratory drilling appears to be justified.

Yours sincerely,

**Em. Prof. R.W.R. Rutland AO FTSE**

**Niitsuma Laboratory**  
**Department of Geoscience and Technology**  
**Graduate School of Engineering**  
**Tohoku University**

Aobu-ku  
Sendai, 980-77 Japan  
Tel & Fax +81 (22) 217-7398  
e-mail mtc@ni4.earth.tohoku.ac.jp **MTC**

April 9, 2002

*The Directors*  
*Geodynamics Limited*

#### **Hot Dry Rock (HDR) Reservoir Development by Hydraulic Stimulation**

I have been asked by Geodynamics Limited to act as an independent expert and comment on its proposed hot dry rock reservoir development in the Cooper Basin area of northern South Australia. I have spent the last 14 years in charge of the Niitsuma Laboratory in the Department of Geoscience and Technology at Tohoku University, Sendai, Japan, where we have specialized in establishing new mapping and imaging technologies for advanced energy extraction from deep geothermal resources. Much of this work has been through my chairmanship of the joint research project known as MTC. This project brings together researchers from Japan, USA, France, UK, Sweden, Germany, Switzerland and Australia, and is focused on studying hot dry rock reservoir characteristics at research sites in many of these countries. I am also a current member of the Board of Directors of the International Geothermal Association.

HDR reservoir development is the process by which a heat exchange reservoir is developed in the rock at depths required for extraction of heat energy. The process is two-stage; first water is pumped into the rock at high pressure, opening up existing joints and fractures, and spreading out into the rock to form the reservoir. Then in the second stage, water is circulated between two or more wells drilled within the reservoir. In the circulation stage, pumping pressures are much lower than in the stimulation stage. The stimulation takes days to weeks, whereas the circulation should be capable of sustaining output at high temperatures for decades.

Since the first research at Los Alamos, New Mexico in the early seventies, over US\$500 million has been spent on HDR geothermal energy. The knowledge gained from this research has culminated in the successful development of large reservoirs at Soultz in France. At Soultz and at previous research sites, the extent and timing of growth of the reservoir was determined using acoustic emission monitoring networks. Images of the Soultz reservoirs are shown in Figures 1 and 2 in the attached article. As a result, there are now well established relationships between rock physical properties, stress conditions, natural fracture systems, pumping pressures, flow rates and volumes and reservoir shape, size and orientation. These relationships, along with modelling of heat extraction through permeable fractures of given dimensions dictate the thermal performance of an HDR reservoir over a given lifetime.

At all the HDR project sites, reservoirs have been formed by pumping water into natural joint systems in granite rock at pressures approaching or equal to the minimum principal stress conditions in the rock. It has been established that after shear dilation during stimulation of jointed granite, joints are permanently opened and the impedance of fluid flow along these dilated joints has been reduced by factors of twenty or more.

The size of the reservoir is approximately linked to the volume of water pumped into the rock during stimulation. The largest reservoirs have most recently been developed at Soultz, where two reservoirs have been built, one at 3000 to 4000m depth, and the other at 4500 to 5500m depth. Both reservoirs resulted from pumping approximately 25,000 cubic meters of water into the rock. The Soultz reservoirs' vertical elongation limits any larger developments of the reservoirs. This vertical elongation is a function of growth perpendicular to the minimum principal stress direction which is horizontal.

The Cooper Basin HDR reservoir development uses the knowledge obtained from the earlier projects. The major advantage in the granite beneath the Cooper Basin is the expected reservoir growth in a horizontal direction, by virtue of the minimum principal stress being vertical. The program aims to build two horizontal reservoirs each similar in volume to one of the vertical reservoirs at Soultz. Given a vertical minimum principal stress and a network of sub-horizontal joints, such a development is not regarded as a major risk. Pumping pressures will be higher than at Soultz, but well within pressures used in the oil industry. Flow rates of 25 kg/second were achieved at Soultz between wells 450m apart. The expected flow rates in the proposed program also of 25 kg/second between wells 500m apart, but with a reservoir volume twice the size of Soultz appear conservative.

The development, as delineated in the Cooper Basin work program documents, has utilized the knowledge derived from previous HDR reservoir developments, and is consistent with those developments and the expected conditions at the site. I consent to this expert report being published in the prospectus of the company.

April 9, 2002

**Hiroaki Niitsuma**  
Professor, Dr.  
Department of Geoscience and Technology  
Graduate School of Engineering, Tohoku University  
Sendai, Japan

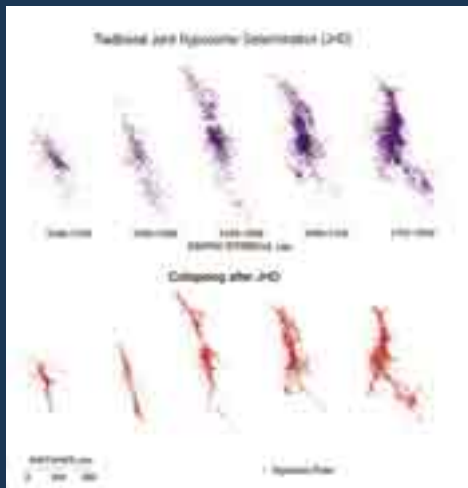


Figure 1. Plan view maps of microearthquakes accompanying a hydraulic injection in France. Maps are shown for events occurring within depth intervals in the stimulated region. The upper set of maps was determined using a Joint Hypocenter Determination approach; the lower set shows the locations after application of the collapsing technique to the upper set of locations. The collapsing process has removed much of the scatter in the original location distribution. Note that the direction of growth of the stimulated region, toward the NW away from the injection zone, shown with a diamond, can be clearly seen in the location set after collapsing.

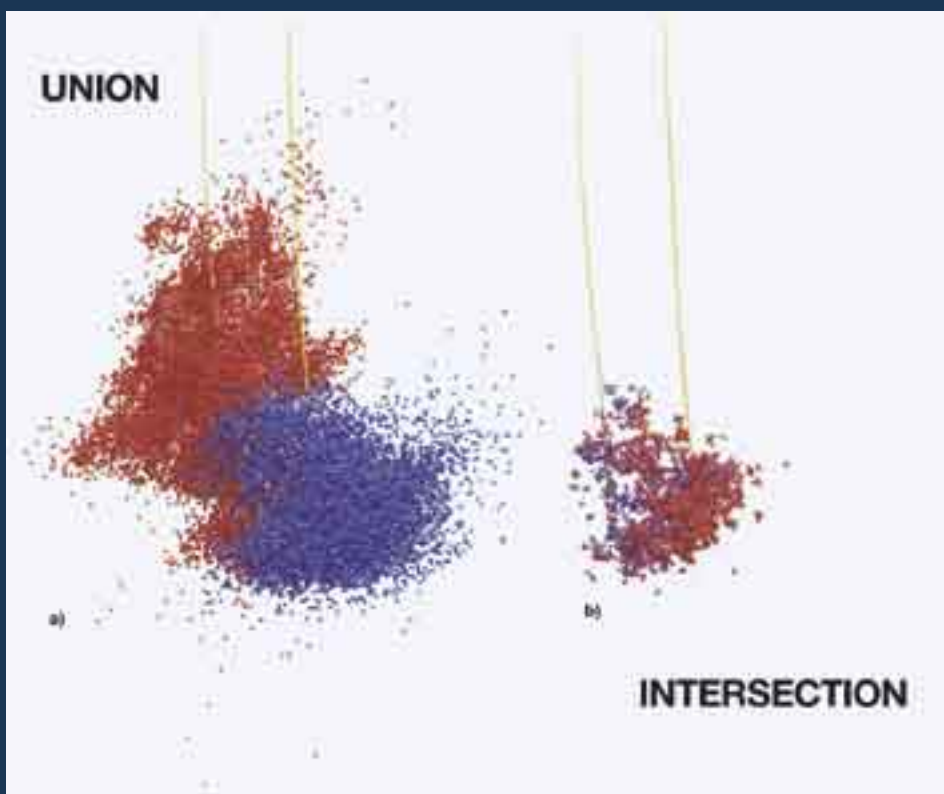


Figure 2. (a) Oblique view of locations of microearthquakes accompanying two stimulations into two nearby wells in Alsace, France. Locations of events accompanying each injection are shown in different colours. (b) Only seismicity that occupies the volume of rock that experienced critically elevated pressures during stimulation from each well (intersection) is shown.

21 June 2002

The Directors  
Geodynamics Limited  
Level 2  
349 Coronation Drive  
Milton Queensland 4064  
AUSTRALIA

## SINCLAIR KNIGHT MERZ

Dear Sirs

### Geodynamics Limited - Independent Review of Proposed “Hot Dry Rock” Pilot Project

This review has been prepared by Sinclair Knight Merz Limited for inclusion in a prospectus to be dated on or about 6 August 2002 issued by Geodynamics Limited (“Geodynamics”) in relation to an Initial Public Offering of 23,000,000 Shares in Geodynamics at an offer price of \$0.50 per Share with a provision for oversubscriptions of up to 8,000,000 Shares to raise up to an additional \$4,000,000.

#### Summary

After reviewing the information provided by Geodynamics related to their proposed Hot Dry Rock pilot project, Sinclair Knight Merz has reached the following conclusions:

- The concepts put forward by Geodynamics with regard to the proposed project are based on the use of well proven technology from the wider petroleum and geothermal industries and a good understanding of the basic resource characteristics within the Cooper Basin.
- The major costs used in the preliminary economic model are generally in line with industry practice although the capital and operating costs assumed for the surface facilities may be low considering the size of the proposed pilot plant (10 to 15 MW).
- The drilling and reservoir development costs in the preliminary economic model are believed to be overestimates, based on existing knowledge of the conditions in the project area, and will therefore partially compensate for the under-estimate in surface facility capital costs.
- There are significant uncertainties related to the possible characteristics of a Hot Dry Rock reservoir system, particularly in terms of fracture properties, that will have a significant impact on the long term commercial success of any large scale development. The data obtained from the construction and operation of the pilot plant will therefore be critical to the economic success of any future large scale commercialisation of the Hot Dry Rock technology concept in Australia.

- Although the proposed pilot project is not designed as a standalone project, if favourable reservoir conditions are encountered, the levelised cost of generating electricity, including initial capital costs, on-going operation and maintenance costs and a 25 year project life, may be less than \$A0.07/kWh.
- The main goal of the Geodynamics pilot project will be to demonstrate that the assumptions made regarding the extraction of heat from the known hot rock resource can be achieved (i.e. fracture spacing and flow rate). The assumptions appear to be reasonable but require to be verified at the selected test site.

#### Introduction

Geodynamics has recently secured tenements in the Cooper Basin area of South Australia that are underlain by high temperature (>250°C) granite basement rocks. It has also secured tenements in the Hunter Valley area of New South Wales, and applied for a tenement in Queensland, where the geology appears to be similar to the known conditions in the South Australian tenements. The high temperature rocks of the Cooper Basin area represent a significant source of energy for Australia that can potentially be used to generate electricity using the “Hot Dry Rock” concept. This involves drilling injection and production wells and circulating a fluid, such as water, through the rock to extract the energy. The circulating fluid is maintained in a closed loop that includes the injection well, the granite reservoir, the production wells and the required surface equipment. The heat is transferred to a second closed loop using conventional heat exchangers at the surface and is then converted to electrical energy using appropriate generation equipment. As both loops are closed, there are no fluid discharges, either liquid or gas, to the environment.

The technologies required to construct and operate both the sub-surface and surface facilities are proven and commercially available within the wider petroleum and geothermal industries. The main goal of the Geodynamics pilot project will be to demonstrate that the assumptions made with regard to the extraction of heat from the known hot rock resource can be achieved (i.e. fracture spacing and flowrate). The assumptions appear to be reasonable but require to be verified at the selected test site.

Geodynamics is presently in the planning stages for the construction of a pilot demonstration project to be located in their tenement areas in the Cooper Basin. The project will generate 10 to 15MW of electricity from the high temperature granites, which occur below the sediment cover in the Cooper Basin at depths of greater than 3,500m. The heat will be extracted by circulating water through the granites, using one injection well and two production wells drilled to depths of up to 5,000m, to provide an effective reservoir thickness of at least 1,000m. The heat will then be transferred to surface facilities to be converted to electrical energy. The pilot project is therefore designed to demonstrate the appropriateness of the technology at the 10 to 15MW generation level and to provide the required information on site specific variables that will be critical to the future large scale commercialisation of the technology in the Australian setting. Geodynamics does not intend that the pilot project be considered a standalone project, but rather a necessary prerequisite for economic electricity production at a much larger scale.

Sinclair Knight Merz has been requested by Geodynamics to undertake an independent review of the concepts, assumptions and costings used in the preliminary economic modelling of the proposed pilot project. Sinclair Knight Merz is an independently owned, technology consulting company, with 3,000 employees in 25 offices worldwide and has been involved in the exploration and development of geothermal resources since the early 1970's. This has included projects in over 16 countries worldwide, including all major projects in the Philippines, Indonesia and New Zealand. Present assignments include projects in New Zealand, Russia (Kamchatka), Kenya, Iran and Nicaragua. Over the past 30 years, Sinclair Knight Merz has built a strong reputation for providing high quality engineering and scientific services to the geothermal industry.

#### Details of Review

Geodynamics has developed a preliminary model of the pilot project using a software package (EGS Modelling for Windows) developed at the Laboratory of Energy and the Environment at the Massachusetts Institute of Technology (MIT), with sponsorship from the US Department of Energy. The software has been designed specifically as a tool for economic analysis of Hot Dry Rock or Enhanced Geothermal Systems and allows the user to investigate the impact of different variables

associated with the reservoir characteristics and surface facilities. A copy of the software package was obtained by Sinclair Knight Merz to assist in this review.

Important components involved in the design and construction of a Hot Dry Rock project that are included in the EGS model are as follows:

- Resource characteristics related to depth and temperature.
- Engineering parameters, including anticipated flow rates, water losses from the system and well dimensions.
- Reservoir parameters related to the fracture system and expected pressure losses within the reservoir.
- Economic parameters.
- Initial capital costs of the plant and on-going operation and maintenance (O&M) costs.

Geodynamics has obtained information on the above parameters from a number of sources:

- Site specific information related to resource depth, temperature, anticipated stress field, drilling and stimulation costs.
- Information on stimulation results and fracture characteristics from other Hot Dry Rock projects in similar environments, such as Soultz (France).
- Information on capital and O&M costs from similar surface facilities presently in operation at "conventional" geothermal project sites in various countries.

The parameters used by Geodynamics in the preliminary model, the sources of the data and Sinclair Knight Merz comments are summarised in Table 1.



Table 1

	Parameter	Value Used	Degree of Accuracy	Geodynamics Comment	Review Comment
Resource Characteristics	1 <sup>st</sup> layer thickness	3.7km	Exact	Existing drill data at project site	OK – confirmed
	1 <sup>st</sup> layer gradient	60°C/km	Exact	Existing temperature measurements at project site	OK – confirmed
	2 <sup>nd</sup> layer gradient	28°C/km	± 3°C	Based on temperature measurements in high heat production granites elsewhere in the world	OK – confirmed
	Maximum depth of reservoir	5km	Exact	Taken as the current limiting economical drilling depth	OK
	Temperature at base of reservoir	273°C	± 3°C	Computed from layer thicknesses and gradients	OK – confirmed
Engineering Parameters	Water loss rate	2%	±2%	Based on nil loss at Soultz, France, and <5% at Fenton Hill, New Mexico	may be low - site specific
	Flow rate per production well	50kg/s	Conservative compared to that achieved at Soultz	Soultz flow of 25kg/s with one vertical reservoir. At Cooper Basin design based on several (possibly 5) horizontal reservoirs.	OK - will actually depend on site specific characteristics
	Well casing ID	7-inch	Exact	Largest size for drilling rigs available	OK
	Production well temp. drop	15°C	Conservative	Temperature drop in Soultz was closer to 10°C	OK
Reservoir Model	Impedance per fracture	2.57		Based on Soultz measurement of total reservoir impedance	OK – will depend on site specific characteristics
	Reservoir shape	Rectangular		Best fits stress difference between maximum and intermediate horizontal stress values	OK
	Well separation	500m	±50m	Based on successful Soultz flow circulation at 450m separation	OK
	Fracture width	250m	±50m	Estimation based on relative horizontal stress differential	OK
	Fracture separation	40m	Conservative	Separation of permeable fractures at Soultz was 25m (the closer the better)	See following discussion
	Number of fractures	25	±10	Based on 40m separation and uncased well from 4,000m to 5,000m	See following discussion

Table 1 (continued)

	Parameter	Value Used	Degree of Accuracy	Geodynamics Comment	Review Comment
<b>Economic parameters</b>	Capacity Factor	90%	±5%	Based on modern geothermal power stations in range 90-95%	OK
	Accrued financing during construction	9%	Exact	Calculated based on construction time	OK
	Fixed annual charge rate	8.6%		Based on conservative bond interest rate of 7% plus calculated additional rate to pay back capital over 25 years	OK
	Project life time	25 years	Conservative	Reservoir can produce for many more years before it draws down	site specific issue; see following discussion
<b>Capital Costs in A\$ millions</b>	Drilling 3 wells ; circulation pump	15 million	± 1 million	First well is estimated at \$5 million, additional 2 wells will be considerably cheaper (experience increases efficiency)	conservative – may be reduced first - \$A5.0 mill. second - \$A4.5 mill. third - \$A4.0 mill.
	Stimulation cost	5 million	Conservative	One horizontal reservoir estimated at \$1 million (see attached). Five stacked reservoirs should be less than 5 times cost	OK
	Power plant construction cost	26 million		Based on A\$2 mill per MW. A 2MW binary geothermal plant at Husavik, Iceland recently had 3 bids in US\$mill/MW of 0.91, 1.17 and 1.38	Cost appears to be low – could range from \$2.5 to \$3 mill per MW
	Fluid distribution costs	0.5 million		Groundwater obtained from Lake Ayre Basin on site	no comment
	Exploration costs	0	Exact	Granitic resource already accurately delineated	OK
<b>Operation &amp; Maintenance Costs in A\$ million/year</b>	Wellfield O&M	0.75 million	Uncertain	Based on \$0.25 million per year per well	OK
	Power plant O&M	0.9 million	Conservative	Based on geothermal plants in US costing US\$0.004/kWh	Possibly low; other information suggests US\$0.006/kWh
	Water Costs	0.35 million	Conservative	May use air cooling for power plant condenser	Air coolers commonly used in arid areas

In reviewing the assumptions, it is apparent that the major uncertainties lie with the estimation of parameters associated with reservoir characteristics, particularly with respect to fracture spacing and the number of flowing fracture planes in the open hole. The major impact of these parameters on a large scale commercial project will be on project longevity and this will directly affect the return on investment. Hence, the requirements for the pilot project to demonstrate the concept and to provide information on reservoir characteristics will be very important to the full commercialisation of the technology in the Australian setting.

For example, in reviewing the provided flow data from the injection well at the Soultz project, it is apparent that there are two issues of importance related to the flow properties of the fracture network:

- (1) The flow profile within the injection well indicates that the fluid is lost through seven main fractures in the open hole between 2,850 and 3,500m. However, the distribution is highly nonlinear, with approximately 50% (12 l/s) of the fluid leaving the well in the top 20% (130m) of this zone. Below this depth, there are three or four more major fractures where flow is greater than 2 l/s. As the flow rate and temperature distributions along each fracture will be different, there will also be differences in the heat transfer characteristics of each fracture path, which may lead to pre-mature cooling in some of the fractures and reduction of the effective life of a production well. This possibility has been recognised by Geodynamics and there are plans to investigate the use of various technologies to control the flow profile in the injection well to minimise this effect.
- (2) From the flow profile, it is also apparent that the fracture spacing is not uniform but varies between 50 and 200m, with an average spacing of approximately 90m. However the reservoir at Soultz dips at approximately 40 degrees, implying that the main fractures intersect the well at approximately 10 degrees. This gives an effective reservoir thickness between the production and injection well of only 112m, rather than the 650m measured in the well bore. Hence, the six or seven flowing fractures are effectively distributed over 112m, giving an effective fracture spacing of between 7 and 35m. The expectation from the apparent stress conditions in the Cooper Basin are that permeable fractures will be oriented at approximately 90 degrees to the wellbore (horizontal) rather than being sub-vertical. For the pilot project, Geodynamics intends to create a number of stacked reservoirs (possibly five), each about 200m thick and based on the Soultz data, a fracture spacing of 40m is considered to be a reasonable expectation.

With regard to the capital and operating cost estimates, the following comments apply:

- (1) It is anticipated that the well drilling cost can be reduced to less than the \$A5 million per well presently assumed by Geodynamics, particularly as more wells are drilled and more experience is obtained with the local conditions. This effect should become apparent by the time the three wells are drilled for the pilot plant and this will help firm up cost estimates for the commercial development of the technology. For this review, we have assumed that the first well is drilled and completed for \$A5 million, the second for \$A4.5 million and the third for \$A4 million.
- (2) Based on available information from various plant suppliers and geothermal operators, the costs associated with the surface facilities are likely to be higher than assumed by Geodynamics, with the capital cost likely to be closer to \$A3 million per MW rather than the \$A2 million used by Geodynamics.
- (3) The assumed O&M costs for the surface facilities also appear to be low for the size of plant to be installed.

#### Effect of Changes to Model

By taking into account the above reductions in costs for the wells and cost increase for the surface facilities, the levelised cost of electricity, including capital costs, on-going O&M costs and a 25 year plant life is increased by \$A0.012/kWh (from \$A0.062 to \$A0.074/kWh). This is partly a function of the proposed size of the pilot project and in view of the well-documented economies of scale associated with construction of larger surface facilities, the cost of further development in the future should be reduced.

The reservoir characteristics will also have an impact on the levelised cost of electricity, particularly if pre-mature cooling occurs in the production wells due to a highly non-linear fracture distribution. As mentioned above, the need to obtain information on all the reservoir parameters is considered to be the major justification for the development of the proposed pilot project prior to full commercialisation.

#### Declaration

The involvement of Sinclair Knight Merz in preparation of this Prospectus or Public Offering document is limited solely to the preparation of this review report, for which a total fee of \$A5,000 has been received.

Yours sincerely

**Anthony J. Menzies**  
*Reservoir Engineering Manager*  
Phone: +64 (09) 913-8991  
Fax: +64 (09) 913-8901  
e-mail: TMenzies@skm.co.nz



***laboratory  
for energy  
and the  
environment***

Room E40-471  
1 Amherst Street  
Cambridge, MA 02139  
phone: (617)-253-0688  
fax: (617)-253-8013  
email: [hjherzog@mit.edu](mailto:hjherzog@mit.edu)

May 31, 2002

Doone Wyborn  
Geodynamics Limited  
PO Box 2046  
Milton  
Queensland 4064  
Australia

Dear Doone:

I have reviewed the report "Modelling Reservoir Performance of an Enhanced Geothermal System based on the Hot Dry Rock Process" by Geodynamics. I find that the inputs to the model are all reasonable values based on the existing knowledge of the Cooper Basin in Australia and HDR test facilities elsewhere and that the results are consistent with these input values.

Sincerely,

**Howard J. Herzog**  
Principal Research Engineer

# Section 06

## Financial Information

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## 6.1 Financial Report

The financial report contains the actual statements of financial performance, statements of financial position and statements of cash flows at 30 June 2001 and 31 March 2002 of Geodynamics Limited. The pro forma statement of financial position and pro forma statement of cash flows have been prepared for illustrative purposes at 31 March 2002 assuming that the capital raising and other transactions contemplated by this Prospectus had taken place. Ernst & Young has conducted an independent audit of the statement of financial performance, statement of financial position and statement of cash flows for the eight month period ended 30 June 2001, an independent review of the statement of financial performance, statement of financial position and statement of cash flows and an independent review of the pro forma statement of financial position and pro forma statement of cash flows for the nine month period ended 31 March 2002 on the basis described in the Independent Accountant's Report as set out in Section 7 of this Prospectus.

### ACTUAL STATEMENTS OF FINANCIAL PERFORMANCE FINANCIAL PERIOD ENDED 31 MARCH 2002 AND 30 JUNE 2001

	Note	Actual 9 months to 31 March 2002 \$	Actual 8 months to 30 June 2001 \$
Administrative expenses		(160,187)	(73,315)
Interest Income		23,774	10,832
<b>Loss from Ordinary Activities before Income Tax Expense</b>	<b>3</b>	<b>(136,413)</b>	<b>(62,483)</b>
Income Tax Benefit attributable to Operating Loss	4	-	-
<b>Loss from Ordinary Activities after Income Tax Expense</b>		<b>(136,413)</b>	<b>(62,483)</b>

The above statements of financial performance should be read in conjunction with the accompanying notes.

**ACTUAL AND PROFORMA STATEMENTS OF FINANCIAL POSITION**  
**FINANCIAL PERIOD ENDED 31 MARCH 2002 AND 30 JUNE 2001**

	Note	Consolidated Pro Forma 31 March 2002 \$	Actual 31 March 2002 \$	Actual 30 June 2001 \$
<b>Current Assets</b>				
Cash	2	10,586,885	491,383	385,225
Receivables	5	37,489	37,489	606,700
Deferred Equity Raising Transaction Costs		-	125,502	-
<b>Total Current Assets</b>		<b>10,624,374</b>	<b>654,374</b>	<b>991,925</b>
<b>Non Current Assets</b>				
Property, Plant and Equipment	6	10,591	10,591	11,055
Deferred Exploration and Evaluation costs	7	477,458	323,458	47,553
<b>Total Non Current Assets</b>		<b>488,049</b>	<b>334,049</b>	<b>58,608</b>
<b>Total Assets</b>		<b>11,112,423</b>	<b>988,423</b>	<b>1,050,533</b>
<b>Current Liabilities</b>				
Accounts Payable	8	139,152	139,152	75,078
Provisions	9	10,229	10,229	-
<b>Total Current Liabilities</b>		<b>149,381</b>	<b>149,381</b>	<b>75,078</b>
<b>Total Liabilities</b>		<b>149,381</b>	<b>149,381</b>	<b>75,078</b>
<b>Net Assets</b>		<b>10,963,042</b>	<b>839,042</b>	<b>975,455</b>
<b>Equity</b>				
Contributed Equity	2, 10	11,261,938	1,037,938	1,037,938
Accumulated Losses	11	(298,896)	(198,896)	(62,483)
<b>Total Equity</b>		<b>10,963,042</b>	<b>839,042</b>	<b>975,455</b>

The above statements of financial position should be read in conjunction with the accompanying notes.



**ACTUAL AND PROFORMA STATEMENTS OF CASH FLOWS**  
**FINANCIAL PERIOD ENDED 31 MARCH 2002 AND 30 JUNE 2001**

	Note	Consolidated Pro Forma 9 month period ended 31 March 2002 \$	Actual 9 month period ended 31 March 2002 \$	Actual 8 month period ended 30 June 2001 \$
<b>Cash Flows from Operating Activities</b>				
Goods and services tax received		27,007	27,007	591
Payments to suppliers and employees		(144,620)	(144,620)	(5,947)
Interest received		29,747	29,747	4,520
Net cash flows used in operating activities	19(B)	<b>(87,866)</b>	<b>(87,866)</b>	<b>(836)</b>
<b>Cash Flows from Investing Activities</b>				
Purchase of property, plant & equipment		(2,718)	(2,718)	(11,054)
Payments for exploration and evaluation expenditure		(250,905)	(250,905)	(47,553)
Redemption of short term deposits		573,149	573,149	-
Purchase of short term deposits		-	-	(593,270)
Net cash flow from/(used in) investing activities		<b>319,526</b>	<b>319,526</b>	<b>(651,877)</b>
<b>Cash Flows from Financing Activities</b>				
Proceeds from issue of Shares		11,500,000	-	1,075,385
Costs of Issue		(1,530,000)	(125,502)	(37,447)
Net cash flow provided by financing activities		<b>9,970,000</b>	<b>(125,502)</b>	<b>1,037,938</b>
Net increase in cash held		10,201,660	106,158	385,225
Add: Opening cash carried forward		385,225	385,225	-
<b>Closing cash carried forward</b>	<b>19(A)</b>	<b>10,586,885</b>	<b>491,383</b>	<b>385,225</b>

The above statements of cash flows should be read in conjunction with the accompanying notes.

**NOTE 1 - SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES**

**(A) Basis of Accounting**

The financial report is a general purpose financial report which has been prepared in accordance with the requirements of the Corporations Act 2001 which include applicable Accounting Standards. Other mandatory professional reporting requirements (Urgent Issues Group Consensus Views) have also been complied with.

The financial report has been prepared in accordance with the historical cost convention and does not take into account changing money values. The financial report has been prepared on a going concern basis, based on the commitment to provide continuing financial support by certain Director related shareholders. However, it is noted that the Company is dependent on the success of the capital raising in order to fund further exploration beyond that to which it is already committed.

The consolidated pro forma statement of financial position reflects the 100% ownership of South Australia Geothermal Energy Pty Ltd.

**(B) Cash**

Cash on hand and in banks and short-term deposits are stated at the lower of cost and net realisable value.

For the purposes of the Statement of Cash Flows, cash includes cash on hand and in banks and money market investments readily convertible to cash within 2 working days, net of outstanding bank overdrafts.

**(C) Other Receivables**

Interest is taken up as income on an accrual basis. Bills of exchange are measured at the lower of cost and net realisable value.

**(D) Recoverable Amount**

Non-current assets are carried at an amount above their recoverable amount, and where carrying values exceed this recoverable amount assets are written down. In determining recoverable amounts the expected net cash flows have not been discounted.

**(E) Property, Plant & Equipment**

**Cost and Valuation**

Property, plant and equipment are carried at cost.

**Depreciation**

Depreciation is provided on a straight line basis on all plant and equipment. Major depreciation rates are:

Office equipment	10 years
Computer equipment	3 years
Field equipment	5-10 years

**(F) Exploration, Evaluation, Development and Restoration costs**

**Costs carried forward**

Costs arising from exploration and evaluation activities are carried forward provided such costs are expected to be recouped through successful development, or by sale, or where exploration and evaluation activities have not, at balance date, reached a stage to allow a reasonable assessment regarding the existence of economically recoverable reserves. Grants and subsidies are offset against costs as incurred. Costs carried forward in respect of an area of interest that is abandoned are written off in the year in which the decision to abandon is made.

**Amortisation**

Costs on productive areas will be amortised over the life of the area of interest to which such costs relate on the production output basis.

**Restoration costs**

Restoration costs that are expected to be incurred are provided for as part of the cost of the exploration, evaluation, development, construction or production phases that give rise to the need for restoration. Accordingly, these costs will be recognised gradually over the life of the facility as these phases occur. The costs include obligations relating to reclamation, plant closure and other costs associated with the restoration of the site.

**(G) Share Capital**

Ordinary share capital is recognised at the fair value of the consideration received by the Company.

**(H) Revenue Recognition**

Revenue is recognised to the extent that it is probable that the economic benefits will flow to the entity and the revenue can be reliably measured. In the case of interest revenue the Company must control the right to receive the interest payment before that interest revenue is recognised.

**(I) Employee Entitlements**

Provision is made for employee entitlement benefits accumulated as a result of employees rendering services up to the reporting date. These benefits include wages and salaries and annual leave.

Employee entitlement expenses and revenues arising in respect of wages and salaries, non-monetary benefits, annual leave, sick leave and other leave entitlements; and other types of employee entitlements including superannuation are charged against profits on a net basis in their respective categories.

**(J) Income Tax**

Tax-effect accounting is applied using the liability method whereby income tax is regarded as an expense and is calculated on the accounting profit after allowing for permanent differences. To the extent timing differences occur between the time items are recognised in the financial statements and when items are taken into account in determining taxable income, the net related taxation benefit or liability, calculated at current rates, is disclosed as a future income tax benefit or a provision for deferred income tax. The net future income tax benefit relating to tax losses and timing differences is not carried forward as an asset unless the benefit is virtually certain of being realised.

For Geodynamics Limited, no future tax benefit is being recognised in the accounts as the benefit is not virtually certain of being realised.

**(K) Earnings Per Share**

Basic earnings per Share is determined by dividing the operating profit after tax by the weighted average number of ordinary Shares outstanding during the financial period.

Diluted earnings per Share is determined by dividing the operating profit after tax adjusted for the effect of earnings on potential ordinary Shares, by the weighted average number of ordinary Shares (both issued and potentially dilutive) outstanding during the financial period.

**(L) Goods and Services Tax (GST)**

GST received from customers is included in cash flows from customers. GST paid on supplies is included in payments to suppliers and employees. GST paid on acquisitions of plant and equipment is included in payments to suppliers and employees. GST is not included in revenue or expenses, but is included in receivables and payables.

**(M) Financial Period**

These are general accounts prepared for the 9 month period ended 31 March 2002 and the 8 months from incorporation to 30 June 2001. They have been prepared for the purpose of inclusion in a Prospectus dated on or about 6 August 2002 wherein the Company is seeking to raise \$11.5 million and list on the ASX.

**(N) Consolidation**

The consolidated pro forma financial statements are those of the consolidated entity comprising Geodynamics Limited and South Australia Geothermal Exploration Pty Ltd.

All intercompany balances and transactions, including unrealised profits arising from intra-group transactions, have been eliminated in full.

**NOTE 2 - ASSUMPTIONS USED IN PREPARING THE PRO FORMA STATEMENT OF FINANCIAL POSITION AND STATEMENT OF CASH FLOWS**

The pro forma statement of financial position and pro forma statement of cash flows as at 31 March 2002 are arrived at as if the following transactions had taken place as at 31 March 2002:

*Pre Initial Public Offering Transactions*

- The issue of a total of 154,000 Shares at \$1.00 each to Pro-Vision Australia Pty Ltd and Beach Petroleum NL to acquire 100% of South Australia Geothermal Energy Pty Ltd, the owner of GEL 97 in the Cooper Basin. This transaction was approved by shareholders on 26 April 2002 and a Share Transfer Agreement was completed on 8 May 2002.
- The Director and employee Share and Option Plan approved by shareholders on 26 April 2002, details of which are set out in Note 21 of Section 6 of this Prospectus, had been adopted.
- The issue under the Share and Option Plan of a total of 100,000 Shares at \$1.00 each and 1,200,000 Share Options to certain officers of the Company. This transaction was approved by shareholders on 26 April 2002.
- A share split of five Shares for each Share currently on offer. Accordingly, the share capital was split from the existing 1,943,459 Shares to 9,717,295 fully paid ordinary Shares. This transaction was approved by shareholders on 26 April 2002.
- The grant under the Share and Option Plan of a further 40,000 Share Options to an employee of the Company. This transaction occurred by resolution of the Board on 17 June 2002.

The issue of the above Options has no impact on the pro forma statement of financial position.

*Initial Public Offering Transactions*

- the offer of 23,000,000 Shares at \$0.50 each pursuant to this Prospectus to raise \$11.5 million; and
- the payment of costs incurred by the Company in relation to the capital raising and the Prospectus estimated to be \$1.53 million.

In the event of oversubscriptions, the Directors may issue up to a further 8,000,000 ordinary Shares to raise a further \$4 million. The pro forma balance sheet would then reflect an increase in cash and share capital of \$3,780,000 after the deduction of additional issue costs of approximately \$220,000.

#### NOTE 3 – EXPENSES AND LOSSES/(GAINS)

Operating loss before income tax has been determined after charging/(crediting) the following specific items:

Depreciation of plant and equipment

Operating lease rentals paid

Actual 9 month period ended 31 March 2002 \$	Actual 8 month period ended 30 June 2001 \$
3,183	-
20,072	5,131

#### NOTE 4 - INCOME TAX

The prima facie tax of 30% (2001 - 34%) on the operating loss differs from the income tax provided in the financial statements as follows:

Prima facie income tax benefit from ordinary activities:

Tax effect of permanent differences:

Income tax benefit not brought to account

Income tax expense attributable to ordinary activities

Actual 9 month period ended 31 March 2002 \$	Actual 8 month period ended 30 June 2001 \$
(40,924)	(21,244)
40,924	21,244
-	-
<b>(59,669)</b>	<b>(21,244)</b>

#### Income Tax losses

Future income tax benefit arising from tax losses not brought to account at balance date as realisation of the benefit is not regarded as virtually certain

This future income tax benefit will only be obtained if:

- (a) future assessable income is derived of a nature and of an amount sufficient to enable the benefit to be realised;
- (b) the conditions for deductibility imposed by tax legislation continue to be complied with; and
- (c) no changes in tax legislation adversely affect the consolidated entity in realising the benefit.

#### NOTE 5 – RECEIVABLES

	Consolidated Pro Forma 31 March 2002 \$	Actual 31 March 2002 \$	Actual 30 June 2001 \$
Current			
Term Deposit	20,122	20,122	593,271
Accounts Receivable	4,102	4,102	-
GST Receivable	12,926	12,926	7,118
Interest Receivable	339	339	6,311
	<b>37,489</b>	<b>37,489</b>	<b>606,700</b>

Term deposits have an average maturity of 30 days and have a fixed interest rate for the term of the deposit. The bank holds security over the term deposit for \$20,000 in bank guarantees.

#### NOTE 6 - PROPERTY, PLANT & EQUIPMENT

<b>Plant and Equipment at cost</b>	13,774	13,774	11,054
Less: accumulated depreciation	(3,183)	(3,183)	-
<b>Total written down amount</b>	<b>10,591</b>	<b>10,591</b>	<b>11,054</b>
<b>Reconciliation of Plant &amp; Equipment</b>			
Carrying amount at beginning	11,054	11,054	-
Additions	2,719	2,719	11,054
Less: accumulated depreciation	(3,183)	(3,183)	-
	<b>10,591</b>	<b>10,591</b>	<b>11,054</b>

**NOTE 7 - DEFERRED EXPLORATION, EVALUATION AND DEVELOPMENT COSTS**

	Consolidated Pro Forma 31 March 2002 \$	Actual 31 March 2002 \$	Actual 30 June 2001 \$
<b>Pre-production</b>			
Exploration and Evaluation Phase	477,458	323,458	47,553
<b>Total</b>	<b>477,458</b>	<b>323,458</b>	<b>47,553</b>

The ultimate recoupment of costs carried forward for exploration and evaluation phases is dependent on the successful development and commercial exploitation or sale of the respective "mining" tenements.

**NOTE 8 - ACCOUNTS PAYABLE**

	Consolidated Pro Forma 31 March 2002 \$	Actual 31 March 2002 \$	Actual 30 June 2001 \$
Trade Creditors	53,765	53,765	67,336
Accrued Liabilities	85,387	85,387	7,742
<b>Trade creditors and accruals</b>	<b>139,152</b>	<b>139,152</b>	<b>75,078</b>

Trade creditors are non-interest bearing and are normally settled on terms ranging from 7 to 30 days.

**NOTE 9 - PROVISIONS**

	Consolidated Pro Forma 31 March 2002 \$	Actual 31 March 2002 \$	Actual 30 June 2001 \$
Annual Leave Accrual	10,229	10,229	-

#### NOTE 10 – CONTRIBUTED EQUITY

	Consolidated Pro Forma 31 March 2002 \$	Actual 31 March 2002 \$	Actual 30 June 2001 \$
<b>Issued and Fully Paid Capital</b>			
Opening Balance (1,689,459 fully paid ordinary Shares)	1,037,938	1,037,938	-
100,000 ordinary Shares issued to 2 non-executive Directors and the Company Secretary pursuant to approval by shareholders at a general meeting held on 26 April 2002	100,000	-	-
154,000 ordinary Shares issued to vendors to acquire South Australia Geothermal Energy Pty Ltd, the owner of GEL 97 pursuant to a general meeting held on 26 April 2002	154,000	-	-
Ordinary Shares issued pursuant to public equity raising via Information Brochure	-	-	1,070,000
Ordinary Shares issued to consultants in consideration of services	-	-	56,000
23,000,000 ordinary Shares issued pursuant to Prospectus*	11,500,000	-	1,037,938
Expenses of Issue*	(1,530,000)	-	(93,447)
Closing Balance	<b>11,261,938</b>	<b>1,037,938</b>	<b>1,037,938</b>

**Notes:**

\* Based on a public issue of 23,000,000 ordinary Shares offered for subscription under this Prospectus. In the event of oversubscriptions, the Directors may issue up to a further 8,000,000 Ordinary shares to raise a further \$4 million. The pro forma balance sheet would then reflect an increase in cash and share capital of \$3,780,000 after the deduction of additional issue costs of approximately \$220,000.



## NOTE 10 – CONTRIBUTED EQUITY (Continued)

		Number of Shares	Issue price	\$'000
<b>Movement in ordinary share capital since incorporation:</b>				
07-11-00	Opening balance - Incorporated with founding vendor Shares	538,459	\$0.01	5,385
30-03-01	Shares issued to Chairman in consideration of his appointment to the Board	25,000	-	-
30-03-01 through 15-06-01	Ordinary Shares pursuant to public equity raising via Information Brochure	1,070,000	\$1.00	1,070,000
27-04-01	Ordinary Shares issued to consultants in consideration of services	56,000	\$1.00	56,000
30-04-01	Transaction costs of equity raising	-	-	(93,447)
<b>31-03-02</b>	<b>Balance</b>	<b>1,689,459</b>	<b>-</b>	<b>1,037,938</b>
26-04-02	Ordinary Shares issued to 2 non-executive Directors and the Company Secretary pursuant to approval by shareholders at a general meeting held on 26 April 2002	100,000	\$1.00	100,000
26-04-02	Ordinary Shares issued to vendors to acquire South Australia Geothermal Energy Pty Ltd, the owner of GEL 97 pursuant to a general meeting held on 26 April 2002	154,000	\$1.00	154,000
	<b>Sub-total</b>	<b>1,943,459</b>	<b>-</b>	<b>1,291,938</b>
26-04-02	Share split of 5 times as approved by shareholders at a general meeting held on 26 April 2002	<b>9,717,295</b>	<b>-</b>	<b>1,291,938</b>

**Terms and Conditions of contributed equity**

Ordinary Shares entitle their holder to one vote, either in person or by proxy, at a meeting of the company.

#### NOTE 11 – ACCUMULATED LOSSES

	Consolidated Pro Forma 9 month period ended 31 March 2002 \$	Actual 9 month period ended 31 March 2002 \$	Actual 8 month period ended 30 June 2001 \$
Balance at the beginning of the period	(62,483)	(62,483)	-
Net Loss attributable to members of Geodynamics Limited	(236,413)	(136,413)	(62,483)
Balance at the end of the period	<b>(298,896)</b>	<b>(198,896)</b>	<b>(62,483)</b>

#### NOTE 12 – EXPENDITURE COMMITMENTS

##### Hot Dry Rock (HDR) Tenement Commitments

In order to maintain current rights of its HDR tenements, the Company is required to outlay annual rentals and to meet certain expenditure requirements of the New South Wales and South Australian Mines Departments. These obligations are subject to renegotiation upon expiry of the HDR tenements. The obligations are not provided for in the financial report and are payable as follows:

	Actual 31 March 2002 \$	Actual 30 June 2001 \$
Payable not later than one year	112,345	-
Later than one year but not later than two years	266,921	-
	<b>379,266</b>	<b>-</b>
<b>Operating Leases (non-cancellable)</b>		
Payable not later than one year	<b>5,538</b>	<b>4,950</b>

##### Capital Expenditure Commitments

There were no capital expenditure commitments at balance date.

**NOTE 13 - EMPLOYEE ENTITLEMENTS AND SUPERANNUATION COMMITMENTS**

	Actual 31 March 2002 \$	Actual 30 June 2001 \$
The aggregate employee entitlement liability is comprised of:		
Accrued wages, salaries and on costs	7,242	-
Provision for annual leave (current)	10,229	-
Provisions (non-current)	-	-
	<b>17,471</b>	<b>-</b>

**Superannuation Commitments**

The chief entity contributes to external accumulation funds for its employees which provides benefits for employees and their dependants on retirements, disability or death. These funds provide benefits on a defined contribution basis. Contributions are enforceable to the extent of the contribution required by the Superannuation Guarantee Levy.

	Actual 9 month period ended 31 March 2002 \$	Actual 8 month period ended 30 June 2001 \$
Employer contributions payable to the plans	10,131	185

**NOTE 14 - EARNINGS PER SHARE**

	Actual 31 March 2002 \$	Actual 30 June 2001 \$
Basic earnings per Share (cents per Share)	(13.1)	(6.7)
Weighted average number of ordinary Shares used in calculation of basic earnings per Share	<b>1,037,938</b>	<b>927,290</b>

**NOTE 15 - SEGMENT INFORMATION**

The Company operates in one geographical segment – namely Australia. The Company operates in one industry segment, being the activity of Hot Dry Rock geothermal energy exploration and development.

#### NOTE 16 – REMUNERATION OF DIRECTORS

	Actual 9 month period ended 31 March 2002 \$	Actual 8 month period ended 30 June 2001 \$
Income paid, payable or otherwise made available, to all Directors of Geodynamics Limited.	120,583	78,499
The number of Directors of the Company whose income (including superannuation contributions) falls within the following bands is:		
Income between:	Number	Number
\$0 to \$10,000	4	2
\$20,000 to \$29,999	-	1
\$30,000 to \$39,999	1	-
\$40,000 to \$49,999	-	1
\$70,000 to \$79,999	1	-

There have been no prescribed benefits paid to or on behalf of Directors and principal executive officers. In the opinion of Directors, remuneration paid to Directors is considered reasonable.

#### NOTE 17 – REMUNERATION OF AUDITORS

Amounts received or due and receivable by the auditors of the consolidated entity for:

Auditing the financial report

5,385	4,000
<b>5,385</b>	<b>4,000</b>

**NOTE 18 - RELATED PARTY INFORMATION****Directors**

The Directors of Geodynamics Limited during the financial period were L. de Graaf, M. Albrecht, D. Wyborn, P. Chopra, N. Galwey and R. Flew.

Robert Flew was appointed a Director on 21 August 2001 and continues in office at the date of this report. All other directors acted as Directors of the Company for the whole of the period under review. Details of the remuneration of all Directors is set out in Note 16 of this financial report.

**Director-related entity transactions**

There were no director related entity transactions during the financial period.

**Equity instruments of Directors**

Interests at Balance Date

Directors' relevant interests in the Shares of the Company at balance date:

	Fully Paid Ordinary Shares
M. Albrecht	140,000
L. de Graaf	189,383
D. Wyborn	139,038
P. Chopra	142,038
N. Galwey	-
R. Flew	-

**Movements in Directors' equity holdings**

No fully paid ordinary Shares in Geodynamics Limited were acquired by Directors of the Company and their Director-related entities during the 9 month period ended 31 March 2002. There were no fully paid ordinary Shares disposed of by Directors of the Company or their Director-related entities during the 9 month period ended 31 March 2002.

# NOTE 19 - NOTES TO THE STATEMENT OF CASH FLOWS

	Pro Forma 9 month period ended 31 March 2002 \$	Actual 9 month period ended 31 March 2002 \$	Actual 8 month period ended 30 June 2001 \$
<b>(A) Reconciliation of Cash</b>			
Cash is defined in Note 1(B) to this financial report. Cash as at the end of the financial period as shown in the Statement of Cash Flows is reconciled to the related items in the balance sheet as follows :			
Cash on Hand	250	250	250
Cash at Bank	10,145,287	49,784	214,926
Cash on 11am Call	441,348	441,348	170,049
<b>Total Cash</b>	<b>10,586,885</b>	<b>491,382</b>	<b>385,225</b>
<b>(B) Reconciliation of the operating loss after tax with the net cash flows used in operations</b>			
Operating loss after income tax	(236,413)	(136,413)	(62,483)
Depreciation and amortisation	3,183	3,183	-
Shares issued to Directors	100,000	-	-
<b>Changes in Assets &amp; Liabilities</b>			
Increase in receivables and prepayments	(3,938)	(3,938)	(13,431)
Increase in trade creditors and accruals	39,073	39,073	75,078
Provision for Annual Leave	10,229	10,229	-
<b>Net Cash Flow used in Operating Activities</b>	<b>(87,866)</b>	<b>(87,866)</b>	<b>(836)</b>

## NOTE 20 - CONTINGENCIES

### (A) Contingent Liabilities

Geodynamics Limited has been advised that the South Australian Geothermal Exploration Licences Nos. 97 and 98 (GELs) have been granted by the Department of Primary Industries and Resources South Australia on the basis that the grant of a GEL is not an act which creates a 'right to mine' and therefore 'the right to negotiate' process in the relevant native title legislation does not apply and the grant of the GELs are valid for native title purposes. The Company's legal advice is that this is a sustainable position although it would be open to a Court to reach a different conclusion. Any substantiated claim may have a financial ramification for the Company.

The Company has also been advised that none of the New South Wales tenements are invalid for native title purposes or attract the relevant right to negotiate provisions in the applicable native title legislation.

### (B) Contingent Gain

In December 2001, the Commonwealth Industry Research and Development (IR&D) Board approved the Company's application for up to \$5 million of funding under the R&D START program. The funding is for the research and development component of the development of an underground heat exchanger and the execution of a long term circulation test at the Company's Cooper Basin Project. Under the grant, the Company has access to funding of 30% of eligible expenditure to a maximum of \$5 million. The funding is subject to certain conditions, namely:

- by 31 August 2002, the Company must demonstrate that it has at least \$10 million in its account as a result of an initial public offering prior to execution of the grant agreement;
- The IR&D Board must be provided written confirmation that there are no native title impediments that will affect the conduct of the project and commercialisation of the outcome prior to execution of the grant agreement. In this regard, the Company received a letter dated 4 June 2002 on behalf of the IR&D Board confirming that this condition has now been met; and
- That a written agreement is executed between the IR&D Board and the Company within 90 days from the date on which the above conditions are met.

## NOTE 21 - SUBSEQUENT EVENTS

### (A) South Australia Geothermal Energy (SAGE) Agreement

On 8 May 2002 Geodynamics completed a Share Transfer Agreement with the previous owners of GEL 97 in the Cooper Basin. The previous owners were Pro-Vision Australia Pty Ltd 81.8% and Beach Petroleum NL 18.2%.

These two parties held their equity in GEL 97 through South Australia Geothermal Energy Pty Ltd (SAGE) which is the holder of GEL 97. In essence, the Agreement allowed for Geodynamics to acquire all of the issued shares of SAGE. As a result, this Company is now a wholly owned subsidiary of Geodynamics Limited. As part of the Agreement, Geodynamics Limited has issued 154,000 fully paid ordinary Shares to the above parties as follows:

- 126,000 fully paid ordinary Shares to Pro-Vision Australia Pty Ltd; and
- 28,000 fully paid ordinary Shares to Beach Petroleum NL.

The Agreement contains a number of provisions which could lead to the cancellation of the transaction, namely:

- In the event that Geodynamics is not listed on the Australian Stock Exchange 20 months after the date of the execution of the above Agreement being 7 March 2002; and
- In the event that Ministerial approval is required for the transfer of South Australia Geothermal Energy Pty Ltd to Geodynamics and that this cannot be obtained within 20 months of the date of execution of the above Agreement.

This in turn would then result in Geodynamics returning the shares in SAGE to the previous owners for a return of their collective 154,000 Shares in the Company which would then be cancelled. For the purpose of the Corporations Act 2001, shareholder approval is required for Geodynamics to buy back the 154,000 Shares in this manner and this approval was granted at a general meeting held on 26 April 2002.



The Share Transfer Agreement entered into with the owners of GEL 97 in the Cooper Basin provides the following benefits:

- It avoids fragmentation and duplication of Hot Dry Rock efforts in Australia. Geodynamics becomes the leading HDR geothermal energy development company in Australia with its ownership of two adjacent geothermal tenements in the Cooper Basin of South Australia and two in the Hunter Valley in NSW;
- The Company's overall credibility and position for future capital raising will be enhanced; and
- It secures 100% ownership of geothermal exploration licences GEL 97 and GEL 98 which cover an area containing a world-class high-grade geothermal resource.

**(B) Approval of Directors and Employees Incentive Share & Option Plan**

At a general meeting held on 26 April 2002, shareholders approved the Directors and Employees Incentive Share & Option Plan. Key attributes of the Plan are:

- The object of the Plan is to provide an incentive in order to retain and motivate eligible persons;
- The Plan provides for the issue of Options over unissued Shares for the three year term of the Plan and for the issue of Shares up until the date the Company is listed on ASX;
- The exercise price of Options issued under the plan will be 50 cents (in relation to Options issued prior to the Company's admission to the official list) or the weighted average closing share price of the Company's ordinary Shares on ASX for the 10 trading days immediately preceding the day on which the Options are granted;
- Options will vest in three equal tranches as follows:
  - as to one third on the day which the Company makes an ASX announcement that it has completed a circulation test in a HDR geothermal underground heat exchanger (first tranche);
  - as to one third on the day the Company makes any ASX announcement that it has completed a bankable feasibility study for

the development of a demonstration HDR geothermal power plant or if the closing share price on ASX is 75 cents or greater from the day which is two years after the Listing Date (second tranche);

- as to one third on the day the Company makes an ASX announcement that it has successfully completed the development and construction of a demonstration HDR geothermal power plant or if the closing share price on ASX is \$1.00 or greater from the day which is 3 years after the Listing Date (third tranche).
- The maximum number of Options and Shares to be issued under the Plan cannot exceed 5% of the total number of Shares on issue at the time of the proposed issue or grant.

**(C) Issue of 100,000 fully paid Shares and 1,240,000 Share Options under the Directors and Employees Incentive Share & Option Plan**

At a general meeting held on 26 April 2002, shareholders approved the issue of the following securities in the Company:

	Fully Paid Ordinary Shares*	Share Options
M. Albrecht	-	300,000
L. de Graaf	-	300,000
D. Wyborn	-	200,000
P. Chopra	-	100,000
N. Galwey	40,000	100,000
R. Flew	40,000	100,000
P. Frederiks	20,000	100,000
<b>TOTAL</b>	<b>100,000</b>	<b>1,200,000</b>

\* These Shares were approved on a pre-split basis and as per paragraph (D) below were then approved to be split by five times.

The Board also approved on 17 June 2002, the issue of 40,000 Share Options on a post-split basis to an employee of the Company.

**(D) Share Split**

At a general meeting held on 26 April 2002, shareholders approved a share split of five times. This share split was undertaken in preparation for an IPO. Directors considered that the Company currently has a value in excess of \$5 million on a Pre-IPO basis and accordingly, the share capital was split from the existing 1,943,459 Shares on issue by five times to 9,717,295 fully paid ordinary Shares reflecting an approximate share valuation of 50 cents per Share.

**(E) Deferred Equity Raising Transaction Costs**

At balance date, the Company had capitalised \$125,502 in transaction costs directly attributable to preparing for an IPO to raise \$11.5 million. The Company continues to prepare for an IPO and expects that the IPO will be completed and the Company listed on ASX by September 2002. On this basis, all costs of the issue including the deferred equity transaction costs named above will be applied against contributed equity as costs of the issue.

**(F) Pre-IPO commitments and Agreement with the Brokers to the Offer**

Pre- IPO commitments of approximately \$7.8m have been obtained. In addition a letter agreement with the Brokers to the Offer was signed on 6 August 2002.

**NOTE 22 - FINANCIAL INSTRUMENTS****(A) Interest rate risk**

The Company's exposure to interest rate risks and the effective interest rates of financial assets and financial liabilities at balance date, are as follows:

**(i) Financial Assets**

	Floating Interest Rate	Fixed Interest rate maturing in 1 year or less	Non Interest Bearing	Carrying Amount per Balance Sheet	Weighted average effective interest rate
	2002	2002	2002	2002	2002
Cash	491,133	-	250	491,383	3%
Short Term Deposits	-	20,122	-	20,122	4%
Receivables	-	-	17,367	17,367	N/A
	2001	2001	2001	2001	2001
Cash	384,975	-	250	385,225	4.0%
Short Term Deposits	-	593,271	-	593,271	4.5%
Receivables	-	-	13,429	13,429	N/A

## NOTE 22 - FINANCIAL INSTRUMENTS (Continued)

## (ii) Financial Liabilities

	Floating Interest Rate	Fixed Interest rate maturing in 1 year or less	Non Interest Bearing	Carrying Amount per Balance Sheet	Weighted average effective interest rate
	2002	2002	2002	2002	2002
Trade creditors and accruals	-	-	139,152	139,152	N/A
	2001	2001	2001	2001	2001
Trade creditors and accruals	-	-	75,078	75,078	N/A

## (B) Net Fair Values

**Recognised Financial Instruments**

The carrying amounts of recognised financial assets and recognised financial liabilities are considered to approximate fair value.

The following methods and assumptions are used to determine the net fair values of financial assets and liabilities

- (a) Cash (refer Notes 1(B); and 19(A))  
Cash includes cash on hand and in banks, and money market investments readily convertible to cash within 2 working days, net of outstanding bank overdrafts (if any).
- (b) Receivables (refer Note 5)  
The carrying amount approximates fair value.

- (c) Short-term Deposits (refer Note 5)  
The carrying amount approximates fair value because of their short-term to maturity.

- (d) Trade creditors and accruals (refer Note 8)  
Liabilities are recognised for amounts to be paid in the future for goods and services received, whether or not billed to the Company. All amounts are normally settled within 30 days, and discounts for early payment are normally taken where it is considered advantageous for the Company to do so.

## (C) Credit Risk Exposures

The Company's maximum exposures to credit risk at balance date in relation to financial assets, is the carrying amount of those assets as recognised on the balance sheet.

There are no derivative financial instruments currently being used by the Company.

## 6.2 Future Capital Raising

The Company has not raised any capital for the 3 months before the date of the successful completion of this Prospectus and will not need to raise any capital for 3 months after the date of this Prospectus to achieve its objectives in this Prospectus.

Nonetheless, at the request of Metasource, the Company has agreed in the 10 months after Closing Date to raise equity funding of \$3,000,000 in addition to the monies to be raised under this Prospectus to meet unforeseen contingencies – see Section 9.8 for further details of this Agreement.

# Section 07

## Independent Accountant's Report

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6 August 2002

The Directors  
Geodynamics Limited  
Level 2  
349 Coronation Drive  
Milton, Qld 4064

PO Box 7878  
Waterfront Place  
Brisbane QLD 4000

Dear Directors

## INDEPENDENT ACCOUNTANT'S REPORT

### 1. INTRODUCTION

This report has been prepared at the request of the Directors of Geodynamics Limited ("Geodynamics" or "the Company") for inclusion in a Prospectus to be dated on or about 6 August 2002, relating to the offer of 23,000,000 ordinary Shares at a price of \$0.50 each, to raise approximately \$11.5 million with a provision to accept oversubscriptions of up to a further 8,000,000 ordinary Shares to raise a further \$4 million.

### 2. BACKGROUND INFORMATION

Geodynamics Limited was formed on 7 November 2000 as a company limited by shares that is incorporated and domiciled in Australia.

Geodynamics was established to focus solely on the development of renewable energy generation from Hot Dry Rocks (HDR) in Australia. The Company beneficially owns HDR geothermal exploration licenses in NSW and in the north-east part of South Australia. Exploration work has commenced in the Hunter Valley and Cooper Basin with a view to selecting the best site to develop a demonstration geothermal power plant. Geodynamics Limited is the only known public company in Australia with a focus on HDR energy.

The purpose of this Report is to set out information relevant to the actual financial performance of Geodynamics for the eight months from incorporation to 30 June 2001, the subsequent nine months ended 31 March 2002 and for illustrative purposes, the pro forma statement of financial position and statement of cash flows of the Company at 31 March 2002 assuming the capital raising and other transactions contemplated by this Prospectus had taken place.

### 3. SCOPE OF EXAMINATION

Ernst & Young has been requested to prepare an Independent Accountant's Report on the actual historical financial report at 30 June 2001 and 31 March 2002 and pro forma statement of financial position and pro forma statement of cash flows of the Company at 31 March 2002.

The Financial Information contained in Section 6 of the Prospectus has been prepared by the Directors on the basis of the significant accounting policies adopted by the Company as summarised in Note 1 of Section 6 of the Prospectus, including the requirements of applicable accounting standards and other mandatory professional reporting requirements in

Australia in so far as they relate to the Company's financial performance, financial position and statement of cash flows.

#### Actual Financial Report – 30 June 2001

We have audited the general purpose financial report of Geodynamics for the eight month period from incorporation to 30 June 2001 as set out in Section 6. The Directors of Geodynamics are responsible for the general purpose financial report for the period ended 30 June 2001.

Our audit has been conducted in accordance with Australian Auditing Standards to provide reasonable assurance as to whether the historical financial report is free of material misstatement. Our procedures included examination, on a test basis, of evidence supporting the amounts and other disclosures in the historical financial report, and the evaluation of accounting policies and significant accounting estimates. These procedures have been undertaken to form an opinion whether, in all material respects, the historical financial report is presented fairly in accordance with applicable Accounting Standards and other mandatory professional reporting requirements in Australia, so as to present a view that is consistent with our understanding of Geodynamics' financial position and performance as represented by the results of its operations and its cashflows.

#### Actual Financial Report – 31 March 2002

We have conducted an independent review of the general purpose financial report of Geodynamics for the nine month period ended 31 March 2002 as set out in Section 6 in order to state whether, on the basis of the procedures described, anything has come to our attention that would indicate that the actual financial report is not presented fairly in accordance with applicable Accounting Standards and other mandatory professional reporting requirements in Australia.

Our review of the general purpose financial report as at 31 March 2002 as set out in Section 6 of this Prospectus was conducted in accordance with Australian Auditing Standard AUS 902 "Review of Financial Reports" and was limited to enquiries of company personnel, reading of supporting workpapers, review of the financial statements, reading of contracts, directors minutes and other documents, analytical review procedures applied to the financial data, performance of certain limited verification procedures and establishment of consistency in application of accounting standards and policies.

These review procedures do not provide all the evidence that would be required in an audit, thus the level of assurance

provided is less than that given in an audit. We have not performed an audit and accordingly, we do not express an audit opinion on the general purpose financial report as at 31 March 2002 as detailed in Section 6 of this Prospectus.

#### **Pro Forma Statement of Financial Position and Statement of Cash Flows**

We have conducted an independent review of the pro forma statement of financial position and pro forma statement of cash flows of Geodynamics as at 31 March 2002 as set out in Section 6 of this Prospectus in order to state whether, on the basis of the procedures described, anything has come to our attention that would indicate that the pro forma statement of financial position and pro forma statement of cash flows are not presented fairly in accordance with applicable Accounting Standards and other mandatory professional reporting requirements in Australia and the pro forma transactions as set out in Note 2 of the accounts set out in Section 6 of this Prospectus. The Directors of Geodynamics are responsible for the pro forma statement of financial position and pro forma statement of cash flows.

Our review has been conducted in accordance with Australian Auditing Standard AUS 902 "Review of Financial Reports" and was limited to enquiries of the Directors and personnel of Geodynamics, reading of supporting workpapers, Directors' minutes and relevant contracts, analytical review procedures applied to the financial data, the performance of limited verification procedures and establishment of consistency in application of accounting standards and policies. We have also considered whether the pro forma transactions as set out in Note 2 of the accounts set out in Section 6 form a reasonable basis for the preparation of the pro forma statement of financial position and pro forma statement of cash flows.

These review procedures do not provide all the evidence that would be required in an audit, thus the level of assurance provided is less than that given in an audit. We have not performed an audit and accordingly, we do not express an audit opinion on the pro forma statement of financial position and pro forma statement of cash flows as at 31 March 2002 as detailed in Section 6 of this Prospectus.

#### **4. STATEMENTS**

##### **Actual Financial Report – 30 June 2001**

In our opinion, the historical financial information contained in Section 6 of the Prospectus presents fairly in accordance with applicable Accounting Standards and other mandatory

professional reporting requirements in Australia, the financial position of Geodynamics as at 30 June 2001 and its performance for the eight month period ended 30 June 2001.

##### **Actual Financial Report – 31 March 2002**

Based on our review, which is not an audit, nothing has come to our attention that causes us to believe that the historical financial information contained in Section 6 of the Prospectus does not present fairly in accordance with the requirements of applicable Accounting Standards and other mandatory professional reporting requirements in Australia, the financial position of the Company as at 31 March 2002 and its performance for the nine months ended on that date.

#### **Pro Forma Statement of Financial Position and Statement of Cash Flows**

##### **Pre Initial Public Offering Transactions**

The pro forma statement of financial position and pro forma statement of cash flows as at 31 March 2002 are arrived at as if the following transactions had taken place as at 31 March 2002:

- The issue of a total of 154,000 shares at \$1.00 each to Pro-Vision Australia Pty Ltd and Beach Petroleum NL to acquire 100% of South Australia Geothermal Energy Pty Ltd, the owner of GEL 97 in the Cooper Basin. This transaction was approved by shareholders on 26 April 2002 and a share transfer agreement was completed on 8 May 2002.
- The director and employee share and option plan approved by shareholders on 26 April 2002, details of which are set out in Note 21 of Section 6 of this Prospectus, had been adopted.
- The issue under the share and option plan of a total of 100,000 shares at \$1.00 each and 1,200,000 share options to three officers of the Company. This transaction was approved by shareholders on 26 April 2002.
- A share split of five shares for each share currently on issue. Accordingly, the share capital was split from the existing 1,943,459 shares to 9,717,295 ordinary fully paid ordinary shares. This transaction was approved by shareholders on 26 April 2002.
- The grant under the share and option plan of a further 40,000 share options to an employee of the Company. This transaction occurred by resolution of the Board on 17 June 2002.

The issue of the above options has no impact on the pro forma statement of financial position.

#### **Initial Public Offering Transactions**

The pro forma statement of financial position and pro forma statement of cash flows as at 31 March 2002 are arrived at as if the following transactions had taken place as at 31 March 2002:

- the issue of 23,000,000 Shares at \$0.50 each pursuant to this Prospectus to raise \$11.5 million; and
- the payment of costs incurred by the Company in relation to the capital raising and this Prospectus estimated to be \$1,530,000.

In the event that the issue is oversubscribed, the Directors may issue up to a further 8,000,000 ordinary shares at a price of \$0.50. The payment of an approximately \$220,000 in additional issue costs will be accounted for as a charge against equity.

Based on our review procedures performed, which was not an audit nothing has come to our attention which indicates that the pro forma statement of financial position and pro forma statement of cash flows, as set out in Section 6 of this Prospectus, do not present fairly and in accordance with applicable Accounting Standards and other mandatory professional reporting requirements in Australia, as if the pro forma transactions as set out above had taken place on 31 March 2002.

#### **5. SUBSEQUENT EVENTS**

Other than the matters dealt with in this Report, to the best of our knowledge and belief, there have been no material items, transactions or events subsequent to 31 March 2002, which would require comment on, or adjustment to, the financial information contained in Section 6 of this Prospectus or which would cause such information to be misleading.

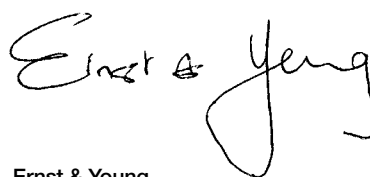
#### **6. DISCLOSURE**

Ernst & Young does not have any pecuniary interests that could reasonably be regarded as being capable of affecting its ability to give an unbiased opinion in relation to this matter. Ernst & Young is the ongoing auditor of the Company and will receive a professional fee for the preparation of this Report. The partners of Ernst & Young do not hold nor have any interest in any shares of the Company.

The Directors have agreed to indemnify and hold harmless Ernst & Young and its employees from any claims arising out of the misstatement or omission in any material or information supplied by the Directors.

Consent for the inclusion of the Independent Accountant's Report in the Prospectus in the form and context in which it appears has been given. At the date of this Report consent has not been withdrawn.

Yours faithfully

A handwritten signature in black ink that reads "Ernst & Young". The signature is stylized, with the "E" and "Y" being particularly large and prominent.

Ernst & Young



# Section 08

## Risk Factors

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An investment in the Company involves a high degree of risk. In addition to the other information contained in this Prospectus, the following risk factors both specific to the Company and of a general nature may affect the ability of the Company to achieve its commercial objectives, may affect future operating and financial performance and may impact on the value of an investment in the Company.

You should carefully consider the following risk factors as well as the other information contained in this Prospectus before you make an investment decision.

## 8.1 Specific Risks

### Resource risk

There is an inherent risk that the Company's primary Cooper Basin geothermal resource and the Company's other areas of exploration do not have the geological or geothermal features to be commercially exploited as a renewable energy source for either small scale electricity generation or large scale base load electricity generation. This risk is beyond the control of the Company and its Directors.

For example, there is no guarantee that the resource has the geological or geothermal features necessary to support commercial geothermal electricity generation in terms of HHP granite heat content, uniformity of heat in the body of HHP granites, the orientation of the HHP granites, the stimulation properties of the granites and the flow rate of water through the body of HHP granite.

However, there is substantial geological and other technical information about the relevant areas covered by the Company's Cooper Basin tenements which support the presence of commercially feasible geothermal resources.

The main objective of stage one of the Company's business plan is to demonstrate that the assumptions made in relation to the extraction of heat from the known Cooper Basin HDR resource can be achieved.

### Development and operating risks

Developing and extracting geothermal energy involves various development and operational risks.

**Drilling** - the Company will use established drilling techniques to minimise technical risks associated with drilling. In the Company's view, the key drilling risks are the potential cost and time overruns related to unexpected local conditions.

**Development of Underground Heat Exchanger** - the information currently available to the Company supports the view that the local geological and technical conditions will be amenable to the development of horizontal underground

heat exchangers by using hydraulic stimulation techniques developed over the last 30 years in the USA, UK, France and Japan.

However, these geological and technical conditions have not been physically tested, and there is a risk that an underground heat exchanger cannot be developed by using the hydraulic stimulation techniques proposed or be developed to the extent that the underground heat exchanger can be commercially exploited.

**Timing** - risks in connection with timing are similar to those encountered in other resource development projects and are mainly limited to unknown geological conditions, availability of contractors and equipment, and weather. These specific stage one risks, could prevent completion of the development of the underground heat exchanger or delay it beyond the scheduled 18 months allowed for its development.

In addition, there are risks of non-completion or delay in the completion of any of the physical works contemplated in any stage of the Company's business plan (such as the commercial demonstration power plant contemplated in stage two of the Company's business plan); the completed facilities operating below capacity or not otherwise performing as planned; cost overruns, equipment failures and other accidents, adverse weather conditions, the remoteness of tenements, restrictions on access, fires and spills.

Any of these events or other unanticipated events could have a material adverse effect on the Company's ability to achieve its business plan at all; delay completion or increase materially the costs of completing any stage of the Company's business plan; or have a material adverse effect on the economic feasibility of the Cooper Basin project.

The Company will manage the technical risks associated with its activities by using technologies to construct and operate both the sub-surface and surface facilities which are established and commercially available within the wider petroleum and geothermal industries.

### No operating history

The Company was formed in November 2000 and has no history of exploring for geothermal energy, developing or extracting HDR geothermal energy or operating geothermal power plants. As a result, there is no relevant history or track record which can be used to evaluate the likely performance of the Company or its ability to achieve its objectives.

Despite the lack of operating history, the Directors believe that the Company internally has the necessary management experience and expertise and externally has access to the required technical support (including a technical services agreement with CSIRO), necessary to achieve its objectives and business plan.

### Dependence on the Cooper Basin project

The Company's principal project and focus is the Cooper Basin HDR geothermal project. The Company's future is primarily dependent on an ability to develop this project in the way described in this Prospectus. A failure to complete and operate the Cooper Basin project in the way described in this Prospectus would have a material adverse effect on the Company and the value of its Shares.

The Company's future is also dependent on the financial performance of the Cooper Basin project not being materially adversely different from the economic feasibility study which the Company has carried out.

The Company's economic feasibility study of the project is based on assumptions contained in that study which are inherently subject to significant uncertainties. Given the size, complexity, nature and timeframe of the project to full commercialisation, there is a risk that actual financial performance could differ from the results in the economic feasibility study in a materially adverse way. Accordingly, no assurance can be given that the financial performance of the project in the economic feasibility study can be achieved.

### Regulatory risks

The Company's activities are subject to compliance with various laws including State and Commonwealth laws relating to the protection of the environment and aboriginal culture and heritage, native title and exploration for geothermal resources. In addition, the Company is relying on financial incentives provided in the Commonwealth Renewable Energy (Electricity) Act 2000 to assist in creating a market for electricity generated by renewable geothermal energy. The introduction of new legislation, amendments to existing legislation, changes in government policy or the interpretation of existing laws, could have a material adverse effect on the operations, financial performance and prospects of the Company.

The Company's application for a permit to explore for geothermal energy in south west Queensland has not yet been accepted by the Queensland Department of Natural Resources. The Department has indicated that there may need to be changes to mining legislation in Queensland before the Company's application can be processed. Accordingly, there is no assurance that the Company will be successful in its application.

### Native title risk

The Company's GELs have been granted by the Department of Primary Industries and Resources South Australia on the basis that the relevant native title legislation does not apply and that the GELs are valid as to native title.

The native title implications of the grant of GELs generally under the South Australian Petroleum Act 2000 have not been considered by any Court. There is a risk that the grant of the GELs may be challenged or ultimately held to be invalid as to native title. If the grant of the GELs was found to be invalid as to native title, the Company would either have to re-apply for the grant of new GELs and comply with the native title legislation including the right to negotiate procedures or negotiate an indigenous land use agreement with interested indigenous groups. Either of these outcomes could have a materially adverse effect on the Company's ability to achieve its business plan or to do so without material delay or additional cost.

The Company will require new licences in the future for its commercialisation activities. For example, in South Australia, the Company will require new retention licences and production licences to extract or release geothermal energy. Native title legislation could apply to the grant of these future licences and require the Company to follow the right to negotiate procedure before such tenements could be validly granted. The need to comply with native title laws could have a materially adverse effect on the Company's ability to achieve its business plan or to do so without material delay or additional cost.

### Reliance on key personnel and external contractors

The ability of the Company to achieve its objectives depends on being able to retain certain key management and technical personnel including the Company's managing director and to engage external personnel to provide services under contract to the Company.

If the Company cannot secure external technical expertise (for example, to carry out contract drilling or to construct the proposed commercial demonstration plant or full scale commercial plant) or if the services of any of the present management or technical team cease to become available to the Company, this may affect the Company's ability to achieve its objectives at all or to do so on time or within the relevant target financial and technical parameters.

The Company has secured the services of the managing director under an executive services agreement which is summarised in Section 9.10.

## Electricity market

Ultimately, the future of the Company as a base-load electricity generator depends on its ability to find customers for the electricity it produces, to sell that electricity on commercial terms and prices and technically and physically to supply and deliver the electricity to its customers. There is no assurance that the Company will ultimately be able to sell the electricity it produces on commercial terms or that the Company will be able technically and physically to supply and deliver the electricity it produces to its customers. Electricity is a traded commodity in Australia and its long term price may rise and fall.

Although the Company has entered into a non-binding conditional Memorandum of Understanding with Santos Limited to negotiate the sale of electricity the Company generates from the Cooper Basin project, there is no assurance that the Company will be able to conclude and enter into legally binding power offtaking contracts for prices and otherwise on terms and conditions which make the commercial demonstration plant or the large scale commercial plant economically feasible.

The royalty requirements of the South Australian government for a producing geothermal power station have not been determined. Royalty payments will have a negative impact on the Company's revenue and may materially affect the Company's ability to operate commercially.

## REC market

The market for RECs (renewable energy certificates) came into being as a consequence of the Renewable Energy (Electricity) Act 2000 which commenced operation on 18 January 2001. As a result, the market for RECs is not yet mature.

The future value of RECs depends in part on Government policy and on the commercial outlook for participants in the electricity industry who currently hold differing opinions as to the future value of RECs certificates. The future price of RECs may also rise or fall depending on the availability of qualifying electricity from other renewable sources and on demand for RECs from electricity retailers. There is no assurance that the Company will be able to obtain an adequate price for RECs (together with electricity) to provide sufficient financial return to justify the construction of a large scale HDR geothermal electricity project.

## Financial Risks

Geodynamics currently has no income yielding assets apart from working capital deposits from which interest income is earned. That position will continue until it is able to earn revenue from the sale of power from its Cooper Basin project.

Geodynamics has incurred losses to date and because the Company intends to continue expenditure on Stage One of its business plan, the Directors anticipate making further losses in the short to medium term. Whilst the Directors have confidence in the future revenue earning potential of the Company, there can be no certainty that the Company will achieve or sustain profitability or achieve or sustain positive cash flow from its operating activities.

## Need for and availability of future financing

The monies to be raised under the Offer will be applied to assist the Company achieve Stage One of its business plan, principally the development of a "Proof of Concept" two-well HDR circulation system in the Cooper Basin. In the second and third stages of its business plan, the Company intends to develop and construct a binary geothermal commercial demonstration power plant and then to proceed to full scale commercialisation of its HDR geothermal energy extraction. The Company will be required to raise additional equity and/or debt capital to finance its activities in Stages Two and Three. There is no assurance that the Company will be able to raise that finance, that the terms of the finance will be satisfactory to the Company or that the finance can be raised in a timely manner.

## Competition

There are risks that the Company will face competition from the development of other electricity from HDR geothermal energy projects or other electricity suppliers using either renewable energy sources (such as wind, hydro or solar power) or from conventional fuels (such as coal or gas). That competition may have an adverse effect on the financial performance of the Company and the value of its Shares.

## 8.2 General Risks

The Company will be subject to general risks, many of which are beyond the control of the Company and its Directors. These include the health of local, state, national and international economies, changes in accounting standards, movements in local and international stock markets, adverse currency movements, interest rate changes and inflation. Each of these risks could have a material adverse effect on the Company's operations, financial performance and share value.

## Section 09

# Material Contracts

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## 9. Material contracts

### 9.1 Brokering Agreement

The Company and the Brokers have entered into an brokering agreement dated 6 August 2002 ('Brokerage Agreement').

#### Sponsorship

The Company appoints the Brokers to sponsor the subscription of 23 million Shares pursuant to the Offer.

#### Applications and allotment

The Offer and allotment of Shares must be carried out in accordance with the timetable, the Prospectus, the Corporations Act, the Listing Rules, the constitution of the Company and any other applicable law.

#### Payments

The Company must pay to the Brokers only if the Minimum Subscription is achieved:

- a management fee of 1.5% of the total amount raised; and
- a selling commission of 4% in respect of the Public Offer Shares and 4% in respect of oversubscriptions.

The selling commission will not apply to applicants introduced by the Directors or associates of Geodynamics.

The Brokers to the Offer will be responsible for paying selling commissions of 4% to other brokers on applications bearing their stamp, on the amount of the successful stamped applications.

The Company has also agreed to pay the Brokers for certain costs and expenses incurred by the Brokers in relation to the Offer.

### 9.2 Share transfer agreement in relation to shares in South Australia Geothermal Energy Pty Ltd

By a Share Transfer Agreement dated 7 March 2002, the Company agreed to buy from Pro-Vision Australia Pty Ltd as trustee for the Shirley Family Trust (**Pro-Vision**) and Beach Petroleum NL (**Beach**) all of the issued shares in South Australia Geothermal Energy Pty Ltd (**SAGE**). In exchange for the transfer of shares in SAGE, the Company agreed to issue to Pro-Vision and Beach, respectively, 126,000 and 28,000 fully paid ordinary Shares in the capital of the Company (before the share split resolved by the Company on 26 April 2002).

Completion of the share transfer was effected on 8 May 2002.

If the Company is not listed on ASX by 7 November 2003 or if the Company's acquisition of the SAGE shares requires the approval of the Minister responsible for the South Australian Petroleum Act 2000 and that approval is not obtained on or before 7 November 2003, then:

- the Company must re-transfer the SAGE shares to each of Pro-Vision and Beach; and
- Pro-Vision and Beach must sell to the Company (and the Company must buy back from them) the Shares in the Company issued to Pro-Vision and Beach.

The selective Share buy back contemplated by the agreement was approved by special resolution of the Company at a general meeting held on 26 April 2002.

The Company has agreed with Pro-Vision and Beach to cause SAGE to carry out or cause to be carried out the work required so as to meet first year working commitments in relation to GEL 97.

Each of Pro-Vision and Beach has given various warranties to the Company in relation to the SAGE shares, SAGE and GEL 97 held by SAGE.

### 9.3 Services Agreement with CSIRO

The Company and SAGE have entered into an agreement with the CSIRO dated 7 March 2002 under which the CSIRO has agreed to provide certain technical services to SAGE and the Company. These services include reports regarding certain aspects of site selection, the availability and suitability of water for the Cooper Basin Project and feasibility studies regarding the generation, production and distribution of power from the Cooper Basin Project. These services are due for delivery by 14 November 2002. SAGE and Geodynamics will own the reports which the CSIRO provides to it under the agreement. Each party will retain ownership of its background intellectual property provided as part of these services.

As part of the Services Agreement, CSIRO has agreed to second a CSIRO officer with an engineering background to the Company until 7 March 2003. The CSIRO secondee will carry out the duties of technical manager for the Company and report directly to the Company's Managing Director. At the end of the secondment, the Company will either employ the secondee or make further arrangements with CSIRO for a further secondment as required by the Company.

#### 9.4 Memoranda of Understanding with Santos Limited

Non-binding memoranda of understanding dated 25 February 2002 have been entered into by the Company and Santos Limited under which:

- Santos will permit the Company (subject to the Company being satisfied with its technical and commercial assessment) to use Santos' McLeod 1 well for the Company's hot dry rock testing program, subject to the execution of a well use agreement; and
- Santos is expected to agree to buy electricity generated from the Company's small scale commercial demonstration geothermal power plant, subject to commissioning of the plant by June 2005 and the execution of an acceptable power supply agreement.

#### 9.5 Drilling Contracts

The Company has issued tenders to various drilling contractors and material suppliers and has now received responses. The Company is currently evaluating the responses received with a view to entering into legally binding contractual commitments following successful completion of the Offer.

#### 9.6 R&D START Grant

The Company received a letter dated 12 December 2001 on behalf of the Industry Research and Development (IR&D) Board confirming that it has approved the Company's application for funding under the R&D START program for the research and development component for the development of an underground heat exchanger (also known as an engineered reservoir) and the execution of a long term circulation test.

Under the grant, the Company has access to funding of 30% of eligible expenditure to a maximum of \$5 million.

The funding is subject to certain conditions, namely:

- By 31 August 2002, the Company must demonstrate that it has at least \$10 million in its account as a result of an initial public offering prior to execution of the grant agreement (see also Section 8.1);

- The IR&D Board must be provided with written confirmation that there are no native title impediments that will affect the conduct of the project and commercialisation of the outcome prior to execution of the grant agreement. In this regard the Company received a letter dated 4 June 2002 on behalf of the IR&D Board confirming that this condition has now been met; and
- That a written agreement is executed between the IR&D Board and the Company within 90 days from the date on which the above conditions are met.

#### 9.7 Pre-IPO Commitments

The following investors have committed to subscribe for Shares as part of this Offer under this Prospectus:

Pre-IPO Investor	Number of Shares	Gross Amount
Metasource Pty Ltd	10,443,392	\$5,221,696
CVC REEF Ltd	2,058,186	\$1,029,093
The Australian National University	2,058,186	\$1,029,093
Other existing shareholders	1,158,000	\$579,000
<b>TOTAL</b>	<b>15,717,764</b>	<b>\$7,858,882</b>

The agreement with Metasource is summarised in Section 9.8.

CVC REEF Ltd and The Australian National University have agreed to subscribe for the above number of Shares under this Prospectus and as existing shareholders they will receive a rebate of 5% of the Offer Price plus an additional early commitment fee of 5% of the Offer Price.

The other existing shareholders have each agreed to subscribe for such a number of Shares which, at the Offer Price, has a total subscription price of not less than half their original investment in the Company and will receive a rebate of 5% on the Offer Price.

A condition of each of the Pre-IPO commitments is that the Company is successful in raising at least \$11.5 million under this Prospectus (including the Pre-IPO commitments).

The rebates and early commitment fees to be provided to all of the Pre-IPO Investors will be paid from the funds raised under this Offer and have been included in the costs of the Offer.



## 9.8 Agreement with Metasource

### 9.8 Agreement with Metasource

Metasource Pty Ltd has agreed to be a Pre-IPO investor under the Offer and to subscribe under this Prospectus for not less than 10,443,392 Shares at the issue price of 50¢ per Share less a capital rebate of 5.0¢ per Share (an effective price of 45.0¢ per Share).

The Metasource investment is subject to:

- The minimum subscription under this Offer being achieved to raise \$11.5 million;
- Geodynamics having, to the satisfaction of Metasource and AusIndustry, satisfied the conditions of the R&D START Grant so that it is irrevocably entitled to the grant funding of 30% of eligible project expenditure up to A\$5,000,000 on or before 30 November 2002; and
- Geodynamics obtaining from ASX by no later than the closing date of the Offer a waiver of the application of listing rule 10.1 in relation to the execution by Geodynamics of the Environmental Credits purchase agreement and a farm in and joint venture agreement as contemplated in the agreement (see below for details);

The agreement also contains the following material conditions:

- After completion of this Offer, to prevent dilution, Metasource has the right to participate pro rata to its then current shareholding in any further issue of equity in Geodynamics at the price payable by other parties at the time and otherwise on substantially the same terms and conditions.
- Metasource has a right to nominate a person to be appointed as a director of Geodynamics.
- Metasource has the right to second one of its employees to Geodynamics for not less than 18 months to assist Geodynamics generally with its drilling operations and/or sub-surface evaluations.

- Metasource and its related bodies corporate have full and continuous access to data produced or derived by Geodynamics through its activities in the development of its geothermal tenements and the development of hot dry rocks technology generally (subject to certain obligations of confidentiality).
- Metasource or its nominee has the right to purchase Environmental Credits from Geodynamics and the parties have agreed to negotiate and enter into a formal purchase contract within 6 months after listing. Environmental Credits is defined broadly and includes renewable energy certificates, carbon credits and any other legal, commercial or other benefit (whether present or future) from any use of renewable energy arising directly or indirectly from the use of thermal energy or the generation of power from power plants developed by Geodynamics.
- Metasource or its nominee has the right to buy all of the environmental credits which arise from 50% (capped at 1,300 GWh/year) of the power generated by Geodynamics' power plant(s) Metasource is, however, not entitled to purchase Environmental Credits in the form of renewable energy certificates, unless either renewable energy certificates become an instrument which is used for purposes other than those currently prescribed in the Renewable Energy (Electricity) Act 2000 or Geodynamics does not claim the benefit of the environmental credits which Metasource is entitled to buy under the purchase contract other than by reason of there being no legal framework within which such benefits can reasonably be claimed.
- The price of environmental credits will be the lower of 75% of the then market price in Australia or the then market price minus \$5/tonne. The purchase price of environmental credits cannot be less than zero.

- Metasources' right to exercise its entitlements under the purchase contract is contingent on Metasource holding not less than its original share holding on 31 December 2005 or at the time that power is first generated by Geodynamics (whichever is the earlier) and having continuously held that original shareholding from the original date of issue of the Shares.
- If Geodynamics develops any of its tenements and/or geothermal exploration licences other than on a 100% basis, it must negotiate in good faith a partnering arrangement with Metasource under which Metasource must be offered a participation interest of between 20% and 50% in the development on terms no less favourable than those offered to other participants. Geodynamics has a similar right if Metasource considers developing a hot dry rock geothermal power project in Australia. These obligations end on the earlier of certain events including 7 years after listing or when Metasource ceases to hold a relevant interest in no less than 15% of the total issued share capital of Geodynamics.
- If Geodynamics does not raise \$13.6 million under this Offer, it must endeavour to raise the difference in equity funds within 10 months of the Closing Date. If Geodynamics proposes to issue 10% or more of its then issued share capital to a third party, then that third party must be an entity reasonably acceptable to Metasource and written agreements entered into by Geodynamics must be on terms acceptable to Metasource, approval of which must not be unreasonably withheld.
- Metasource has a right but not the obligation to farm-in for 20% of the equity in the geothermal exploration licences GEL 97 and 98 in consideration for the expenditure of \$3,000,000 on the works programs under those licences and enter into a joint venture agreement with Geodynamics in relation to the jointly held licences on the basis that Geodynamics will hold an 80% joint venture interest and Metasource a 20% joint venture interest. The parties have agreed to negotiate and enter into a formal option agreement in relation to the farm in and joint venture within 10 months after the Closing Date. Those agreements will contain terms and conditions customary in oil and gas farmins and joint ventures.
- Metasource's right is exercisable by it at any time after 10 months after the Closing Date as long as it holds not less than its original shareholding of 10,442,392 shares in Geodynamics at the time of exercise. Geodynamics can terminate this right if within 10 months of the Closing Date, it raises total equity funds of \$13,600,000 (including any monies raised under this Offer but excluding any funds provided under the R&D START Grant).

### 9.9 Managing Director's Service Agreement

The Company has entered into an agreement with Lambertus de Graaf, dated 22 May 2002 pursuant to which he is engaged as Managing Director and Chief Executive Officer of the Company. The agreement will commence on the date the Offer closes fully subscribed and his engagement from that date will be on the terms and conditions set out in the agreement. Under the agreement, his base annual remuneration is \$250,000. This remuneration may be increased yearly by an amount to be agreed by the parties. Dr de Graaf is responsible for all duties associated with the position of managing director and chief executive officer including the formulation, management and co-ordination of all activities of the Company in relation to the implementation of the hot dry rock development process.

The Company may terminate the agreement if, amongst other things, 14 days written notice is provided and subject to the Company paying Dr de Graaf the equivalent of 1 years base annual remuneration plus other statutory entitlements accrued to that date.

Dr de Graaf may terminate the agreement with 1 months notice if, amongst other things, the Company becomes subject to a takeover. He may also terminate the agreement by giving 3 months written notice if he reasonably believes that the policies, strategies or future plans of the Board are such that he will be unable to implement his strategy or plans for the development of the Company. If that occurs, the Company must pay Dr de Graaf in addition to any payment in lieu of notice, his then current remuneration package for an additional period of 3 months after termination.

### 9.10 Executive Director's Service Agreement

The Company has entered into an agreement with Doone Wyborn, dated 22 May 2002 pursuant to which he is engaged as executive director, exploration and science, of the Company. The agreement will commence on the date the Offer closes fully subscribed and his engagement from that date will be on the terms and conditions set out in the agreement. Under the agreement, his base annual remuneration is \$159,000. This remuneration may be increased yearly by an amount to be agreed by the parties. Dr Wyborn is responsible for the management and co-ordination of activities of the Company in relation to the implementation of the hot dry rock development process.

The Company may terminate the agreement if, amongst other things, 14 days written notice is provided and subject to the Company paying Dr Wyborn the equivalent of 1 years base annual remuneration plus other statutory entitlements accrued to that date.

Dr Wyborn may terminate the agreement with 1 months notice if, amongst other things, the Company becomes subject to a takeover. He may also terminate the agreement if the Managing Director has given notice that the Managing Director reasonably believes that the policies, strategies or future plans of the Board are such that the Managing Director will be unable to implement his strategy or plans for the development of the Company. If that occurs, the Company must pay Dr Wyborn in addition to any payment in lieu of notice, his then current remuneration package for an additional period of 3 months after termination.

# Section 10

## Additional Information

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### 10.1 Company Details

The Company was incorporated on 7 November 2000 as a public company limited by Shares.

A summary of the rights which relate to all Shares which may be issued pursuant to this Prospectus are set out below. This summary does not purport to be exhaustive or constitute a definitive statement of the rights and liabilities of the Company's shareholders.

### 10.2 Rights attaching to Shares

There is only one class of Shares in the Company namely, fully paid ordinary Shares.

The rights attaching to Shares in the Company are:

- set out in the constitution of the Company, a copy of which is available for inspection at the place and times set out in section 10.11, and
- in certain circumstances, regulated by the Corporations Act, the Listing Rules, the SCH Business Rules and the general law.

The following is a summary of the principal rights of the holders of Shares in the Company.

#### Voting

Every holder of Shares present in person or by proxy, attorney or representative at a meeting of shareholders has one vote on a vote taken by a show of hands, and, on a poll every holder of Shares who is present in person or by proxy, attorney or representative has one vote for every fully paid Share held by him or her, and a proportionate vote for every partly paid Share, registered in the shareholder's name on the Company's Share register.

A poll may be demanded by the chairperson of the meeting; by at least 3 members present; by members present representing not less than one-tenth of the total voting rights of all members having the right to vote at the meeting; by members holding Shares in the Company being Shares which in aggregate equate with at least one-tenth of the total sum paid up on all the Shares.

#### Dividends

Dividends are payable out of the Company's profits and are declared or determined to be payable by the Directors. Unless a later date is specified, the dividend is payable as soon as declared.

Before declaring dividends, directors may set aside out of the Company's profits any amount they consider appropriate. This reserved amount may be used in any way that profits can be used, but must not be used to buy the Company's Shares.

#### Transfer of Shares

Shareholders may transfer their Shares by completing a written transfer document in a common form, by making a proper transfer via the Securities Clearing House, or by a form approved by the Directors of the Company. Each written transfer must be signed by or on behalf of the shareholder and the transferee.

The Directors of the Company may refuse to register any transfer of Shares where permitted to by the Listing Rules. Unless the transfer is a proper SCH transfer, to have a transfer registered by the Company, the transferor or the transferee must give the completed transfer form and the relevant Share holding statement to the Company. The Company must not refuse or fail to register or give effect to or delay or in any way interfere with a proper SCH Transfer of Shares or other securities.

#### Meetings and notices

Any Director may convene a general meeting whenever he or she thinks fit. Notice must be given to each shareholder of each general meeting. The notice must state the general nature of the business to be conducted at that meeting.

#### Liquidation rights

The Company has only one class of Shares on issue, which all rank equally in the event of liquidation. Once all the liabilities of the Company are satisfied, a liquidator may, with the authority of a special resolution of shareholders, divide among the shareholders at the time the whole or any part of the remaining assets of the Company. The liquidator may with the sanction of a special resolution of the Company vest the whole or any part of the assets in trust for the benefit of the shareholders as the liquidator thinks fit, but no shareholder of the Company can be compelled to accept any Shares or other securities in respect of which there is any liability.

#### Shareholder liability

As the Shares offered under the Prospectus are fully paid Shares, they are not subject to any calls for money by the Directors and will therefore not become liable for forfeiture.

#### Alteration of constitution

The constitution can only be amended by a special resolution passed by at least three-quarters (75%) of shareholders present and voting at the general meeting.

Once the Company is listed, at least 28 days written notice of the special resolution must be given.

### 10.3 Company tax status

The Directors expect the Company will be taxed in Australia as a public company.

### 10.4 Corporate governance

The Board of Directors of Geodynamics Limited is responsible for the corporate governance of the Company. To ensure the Board is well equipped to discharge its responsibilities, it has established guidelines for the nomination and selection of Directors and for the operation of the Board.

#### Composition of the Board

The composition of the Board is determined in accordance with the following principles and guidelines:

- The Board should comprise a majority of Non-Executive Directors.
- The Chairperson should be a Non-Executive Director.
- The Board should comprise Directors with an appropriate range of qualifications and expertise. The terms and conditions of the appointment of Non-Executive Directors are set out in a letter of appointment. The appointment letter covers the following matters:
  - the level of remuneration;
  - the expectation of the Board in relation to attendance and preparation for all Board meetings;
  - the procedures dealing with conflicts of interest; and
  - the availability of independent advice.
- The Board shall meet as often as required to attend to the affairs of the Company and follow meeting guidelines set down to ensure all Directors are made aware of, and have available to them all necessary information enabling them to participate in an informed discussion of all agenda items.

#### Role of the Board

The Board is responsible for the direction and supervision of the Company's business on behalf of the shareholders, by whom they are elected and to whom they are accountable.

This includes ensuring that internal controls and reporting procedures are adequate and effective. The Directors recognise the need to maintain the highest standards of behaviour, ethics and accountability.

The primary functions of the Board include responsibility for:

- approving objectives, goals and strategic direction for management;
- monitoring financial performance including adopting annual budgets and approving the Company's financial statements;
- ensuring that adequate systems of internal control exist and are appropriately monitored for compliance;
- selecting, appointing and reviewing the performance of the Chief Executive Officer and reviewing the performance of senior operational management;
- ensuring significant business risks are identified and appropriately managed; and
- reporting to shareholders on performance.

The Board may determine from time to time to establish specific purpose sub-committees to deal with specific issues. The Board shall regularly review its own performance and the procedures of the Board.

#### Code of conduct

The Company supports and has adopted the Code of Conduct published by The Australian Institute of Company Directors in 1998.

### 10.5 Geodynamics Directors & Employees Incentive Share & Option Plan

#### Eligible Persons – Who is eligible to participate?

All eligible persons, being all employees and executive officers of the Company and its related bodies are eligible to participate in the Plan. Options and/or Shares may be granted under the Plan to eligible persons. The eligible person may elect a nominee but only in limited circumstances as provided for under the Plan.

#### Commencement and Termination of Plan

The Plan was approved by shareholders at a general meeting on 26 April 2002 and started operation on that date. It will terminate exactly three years after that date. The Plan is administered by the Board.

### Amendment to Plan Rules

Unless the Listing Rules require otherwise, the rules of the Plan may only be amended with the approval of members of the Company by ordinary resolution.

### Participation

Subject to the Plan's rules, the Board may from time to time issue offers to eligible persons to acquire Options, however, the Board may only issue offers to eligible persons to acquire Shares up until the date the Company is admitted to the Official List of ASX.

An offer must be in writing (which shall include electronic form) and shall specify such other terms and conditions as the Board determines.

On acceptance of an offer, the eligible person becomes a participant and is bound by the Plan rules and irrevocably offers to acquire Options and/or Shares under the Plan in accordance with the terms and conditions specified in their form of acceptance.

### Options

Options will be governed by the Plan until the Options are renounced or terminated or lapse or are exercised and Shares have been issued as a result of that exercise.

### Entitlement on exercise of Option

Each Option entitles the holder on payment of the exercise price to subscribe for one fully paid ordinary Share in the capital of the Company.

### No quotation of Options

Options are not transferable. No application will be made to ASX for official quotation of any Options.

### Vesting of Option tranches

Options granted under the Plan vest in the holder of the Options as follows:

- as to one third on the day which the Company makes an ASX announcement that it has completed a circulation test in a HDR geothermal reservoir (first tranche);
- as to one third on the day the Company makes an ASX announcement that it has completed a bankable feasibility study for the development of a demonstration HDR geothermal power plant or if the closing share price on ASX is 75 cents or greater from the day which

is two years after the date on which the Company is admitted to the Official List (second tranche);

- as to one third on the day the Company makes an ASX announcement that it has successfully completed the development and construction of a demonstration HDR geothermal power plant or if the closing share price on ASX is \$1.00 or greater from the day which is 3 years after the date on which the Company is admitted to the Official List (third tranche).

(each a 'tranche' of Options).

### Option exercise period

Subject to the Plan rules, Options may be exercised:

- at any time during the 30 day period commencing on the date of the relevant announcement relating to completion of a circulation test in a HDR geothermal reservoir and ending at 5.00pm on the date which is 30 days later;
- at any time during the 30 day period commencing on the date the Company lodges its Half Year Report with ASX pursuant to Listing Rule 4.1 and ending at 5.00pm on the date which is 30 days later;
- at any time during the 30 day period commencing on the date the Company lodges its Preliminary Final Report with ASX pursuant to Listing Rule 4.3 and ending at 5.00pm on the date which is 30 days later, or
- at any time during the 30 day period following the date of the Company's annual general meeting.

### Restrictions on Option exercise

Options may not be exercised unless:

- the holder thereof is an eligible person; and
- the Options have vested.



**Acceleration of vesting**

Such a number of Options, as the Board in their absolute discretion may determine, shall immediately vest in the option-holder and be capable of being exercised within the immediately following 30 day period or such other period of time as the Board, in its absolute discretion, may determine:

- if an entity obtains a 'relevant interest' in greater than 50% of the 'voting power' in the Company, as those terms are defined in the Corporations Act 2001;
- on the retirement of the option-holder as an Executive Officer of the Company or of a related body, provided that the option-holder has attained the age of 62 years;
- where the holder of the Options is the approved nominee of an Executive Officer, on the retirement of such Executive Officer of the Company or of a related body, provided that the Executive Officer has attained the age of 62 years;
- on the option-holder ceasing to be an Executive Officer of the Company or of a related body due to death or permanent disability of the option-holder;
- where the holder of the Options is the approved Nominee of an Executive Officer, on such Executive Officer ceasing to be an Executive Officer with the Company or a related body due to death or permanent disability of the Executive Officer;
- on the option-holder ceasing to be an Executive Officer with the Company or a related body, provided that the Board, in its absolute discretion, has determined that the Options should vest in the option-holder and be capable of being exercised in accordance with this Rule; and
- where the holder of the Options is the approved Nominee of an Executive Officer, on such Executive Officer ceasing to be an Executive Officer with the Company or a company related or associated to it, provided that the Board, in its absolute discretion, has determined that the Options should vest in the option-holder and be capable of being exercised in accordance with this Rule.

**Option exercise price**

The exercise price in respect of Options shall be either:

- in relation to Options issued prior to the Company's admission to the official list of ASX, \$0.50; or
- in all other instances, the greater of:

- the weighted average closing price of the Company's ordinary Shares on ASX for the ten trading days immediately preceding the day on which the Options are granted; or
- 20 cents

**(the Exercise Price).** Options may only be exercised in multiples of 1,000.

**Remaining marketable parcel restriction**

Options may not be exercised if the effect of such exercise and subsequent allotment of Shares would be to create a holding of less than a marketable parcel of ordinary Shares unless the allottee is already a shareholder of the Company at the time of exercise.

**Ranking of Shares issued on Option exercise**

All Shares issued upon exercise of the Options and payment of the exercise price will rank *pari passu* in all respects with the Company's then existing ordinary fully paid Shares. The Company will apply for official quotation by ASX of all Shares issued upon exercise of the Options.

**Lapse of Options**

Options shall lapse and be incapable of being exercised on the earlier of:

- immediately if the Company is not admitted to the Official List of ASX by 5.00pm on 31 December 2002;
- immediately if the Company is removed from the Official List of ASX;
- subject to the Plan rules, 5.00pm on the day which is 12 months after the vesting date;
- immediately on the holder of the Options ceasing to be an executive officer with the Company or a related body for reasons involving fraud or misconduct;
- immediately where the holder of the Options is the approved nominee of an executive Officer with the Company or a related body and such executive officer ceases to be such for reasons involving fraud or misconduct;
- unless otherwise stipulated by the Board, one month after the holder has ceased to be an executive officer with the Company or a related body for reasons other than fraud or misconduct;

- unless otherwise stipulated by the Board, where the holder of the Options is the approved nominee of an executive officer with the Company or a related body, one month after such an executive officer ceases to be such for reasons other than fraud or misconduct;
- at 5.00pm on the day which is 5 years after the date on which the Options were granted (Expiry Date).

#### **New issues**

There are no participating rights or entitlements inherent in the Options and holders will not be entitled to participate in new issues of capital offered to shareholders during the currency of the Options. However, the Company will ensure that for the purposes of determining entitlements to any such issue, the books closing date will, subject to the Listing Rules, be at least 7 business days after the issue is announced. This will give option-holders the opportunity to exercise Options which have vested prior to the date for determining entitlements to participate in any such issue.

#### **Capital reconstruction**

In the event of any reconstruction, the following rules shall apply:

- In a consolidation of capital - the number of Options will be consolidated in the same ratio as the ordinary capital and the exercise price will be amended in inverse proportion to that ratio;
- In a sub-division of capital - the number of Options will be sub-divided in the same ratio as the ordinary capital and the exercise price will be amended in inverse proportion to that ratio;
- In a return of capital - the number of Options will remain the same, and the exercise price of each Option will be reduced by the same amount as the amount returned in relation to each ordinary Share;
- In a reduction of capital by a cancellation of paid up capital that is lost or not represented by available assets where no securities are cancelled - the number of Options and the exercise price of each Option will remain unaltered;
- In a pro rata cancellation of capital - the number of Options will be reduced in the same ratio as the ordinary capital and the Exercise Price of each Option will be amended in inverse proportion to that ratio;
- In any other case - the number of Options or the Exercise Price, or both, will be reorganised so that the holder of the Option will not receive a benefit that holders of ordinary Shares do not receive.

This rule does not prevent a rounding up of the number of Shares to be received on exercise if the rounding up is approved at the shareholders meeting which approves the reorganisation.

Where the Company is admitted to the official list of ASX, the Options shall be reorganised in accordance with the Listing Rules as they apply to a reorganisation of capital.

#### **Restrictions**

Any Offer under the plan in respect of Shares to an eligible person may be for no consideration or for such other consideration as set forth in the Offer. Shares acquired under the Plan will be registered in the name of the participants.

Options may only be granted, held and exercised by persons who are eligible persons and Shares when initially granted under the Plan may only be held by eligible persons.

#### **Maximum number of Options and Shares**

The Company must not issue any Shares or grant any Options under the Plan if, immediately following that issue or grant, the sum of:

- the aggregate number of unissued Shares over which Options, have been granted but such Options have not been exercised or if exercised Shares have not yet been issued as a result of that exercise under the Plan and any other group employee incentive scheme; and
- the aggregate number of Shares issued during the preceding 5 years under the Plan and any other group employee incentive scheme,

would exceed 5% of the total number of Shares on issue at the time of the proposed issue or grant.

#### **Limit on percentage of Shares which may be held**

No Shares may be issued to a Participant under the Plan if, immediately after such issue, the Participant would own (legally or beneficially) or control the exercise of voting power attached to, 5% or more of all Shares then on issue.

#### **Suspension of Plan**

The Board may suspend the Plan at any time. If the Board suspends the Plan notice shall be given to the eligible persons in such manner as the Board determines. No offers under the Plan shall be made during any period during which the Plan is suspended.

### Costs and expenses

The Company must pay all expenses, costs and charges incurred in operating the Plan except that the Company is not responsible for any taxes which may become payable in connection with the grant of the Options or issues of Shares pursuant to the plan (whether pursuant to an exercise of the Options or a direct issue of those Shares).

### 10.6 Directors' interests

Except as disclosed in this Prospectus, no Director:

- holds or has held in the last 2 years before the lodgement of this Prospectus with the ASIC any interest:
  - In the formation or promotion of the Company; or
  - In any property acquired or proposed to be acquired by the Company in connection with its formation or promotion or the Offer under this Prospectus; or
  - The Offer under this Prospectus, or
- Has been paid or has agreed to be paid or has received or has agreed to receive any benefits:
  - To induce them to become or to qualify as a Director; or
  - For services rendered by them in connection with the formation or promotion of the Company or the Offer under this Prospectus.

### Remuneration of Directors

The constitution of the Company provides that the Non-Executive Directors are entitled to remuneration as determined by the Company in general meeting. The Company's shareholders have resolved that Non-Executive Directors' fees will not exceed an aggregate total of \$80,000.

A Director may be paid fees or other amounts as the Directors determine where a Director performs special duties or otherwise performs services outside the scope of the ordinary duties of a Director. A Director may also be reimbursed for out of pocket expenses incurred as a result of their directorship or any special duties.

Dr Lambertus de Graaf and Dr Doone Wyborn, as Executive Directors of the Company, will be entitled to receive the salary and other benefits set out in their executive service contracts which are summarised in Sections 9.9 and 9.10 respectively.

### Directors' Share and Option holdings

Set out below are details of the interests of the Directors in the securities of the Company immediately prior to lodgement of the Prospectus with ASIC. Interests include those held directly and indirectly.

Director	Ordinary Shares	Options
Mr Martin Albrecht	700,000	300,000
Dr Lambertus de Graaf	946,915	300,000
Dr Doone Wyborn	695,190	200,000
Dr Prame Chopra	710,190	100,000
Mr Robert Flew	200,000	100,000
Mr Neil Galwey	200,000	100,000
Total	3,452,295	1,100,000

In addition to the above, the following Directors have made the following Pre-IPO commitments to subscribe for Shares under this Prospectus.

Director	Ordinary Shares
Mr Martin Albrecht	250,000
Dr Lambertus de Graaf	54,000
Mr Robert Flew	40,000
Mr Neil Galwey	40,000
Total	384,000

### Deeds of indemnity, insurance and access

The Company has entered into separate deeds with each of the Directors and the Company secretary under which the Company agrees to provide certain indemnities to each of those persons, to the extent permitted by law, to obtain for those persons directors' and officers' insurance cover and to provide certain rights of access to books and records of the Company to those persons. Under the deeds, the persons agree to advise the Company of interests which they hold in the Company in order to enable the Company to comply with its disclosure obligations under the Listing Rules.

## 10.7 Interests of experts and advisors

Except as set out in this Prospectus, no person named in this Prospectus as Broker to the Offer or as performing a function in a professional advisory or other capacity in connection with the preparation or distribution of this Prospectus:

- holds or has held in the last 2 years before the lodgement of this Prospectus with the ASIC any interest:
  - In the formation or promotion of the Company; or
  - In any property acquired or proposed to be acquired by the Company in connection with its formation or promotion or the Offer under this Prospectus; or
  - The Offer under this Prospectus, or
- Has been paid or has agreed to be paid or has received or has agreed to receive any benefits for services rendered by them in connection with the formation or promotion of the Company or the Offer under this Prospectus.

Emeritus Professor RWR Rutland has received \$4,000 for the provision of his expert geology and resources report.

Sinclair Knight Merz has received \$5,000 for the provision of its independent review of the Company's economic feasibility study.

Professor Niitsuma is the principal of the Niitsuma Fracture Laboratory which will be engaged by the Company to collect and process acoustic data from the fracturing process to be carried for the Cooper Basin Project. The work done by the Niitsuma Fracture Laboratory will occur under a proposed co-operative research agreement with the ANU and the Laboratory will be reimbursed its travel and accommodation costs. As at the date of this Prospectus, those terms including remuneration have not yet been agreed and the Laboratory's travel and accommodation costs have not yet been incurred.

Hetherington Mining Title Exploration Services Pty Ltd will be paid \$19,820 for the provision of its mining tenement report.

Ernst & Young will receive \$15,000 plus outlays and GST for its investigating accountant's report and has received \$4,548 for its audit of the company's financial statements for the 8 month period ended 30 June 2001.

Phillips Fox will receive \$74,500 plus outlays and GST for the provision of legal services to the Company in relation to the Offer including the provision of its native title report. They will also be entitled to receive additional professional fees for ongoing work done for the Company after the date of this Prospectus in accordance with their usual terms of engagement and hourly charge out rates.

ABN AMRO Morgans Limited and Tolhurst Noall Limited as Brokers to the Offer are entitled to receive a management fee of 1.5% of the total amount raised and selling commissions of 4% in respect of the Public Offer Shares and 4% on oversubscriptions, plus approved out of pocket expenses and GST (Refer to Brokerage and Management fees in the table in Section 2.2). The selling commissions will not apply to applicants introduced by the Directors or associates of Geodynamics.

Wycliffe Pty Ltd has received \$32,000 plus outlays and GST and been issued 150,000 Shares for the provision generally of corporate advisory services to the Company. Philip Hutchings is the principal of Wycliffe Pty Ltd.

### Consents

The following persons have given and have not, before the lodgement of this Prospectus with the ASIC, withdrawn their consent to the issue of this Prospectus in the terms specified below.

Hetherington Exploration and Mining Title Services Pty Ltd has given its consent to the inclusion of its independent exploration titles report in the form and context in which it is included.

Emeritus Professor RWR Rutland has given his consent to the inclusion of his expert geology and potential resources report in the form and context in which it is included.

Professor Niitsuma has given his consent to the inclusion of his independent technical report on underground heat exchanger stimulation in the form and context in which it is included.

Sinclair Knight Merz has given its consent to the inclusion of its independent review of the Company's economic feasibility study in the form and context in which it is included.

The Massachusetts Institute of Technology's Laboratory for Energy and the Environment has given its consent to the inclusion of its letter of its review dated 27 November 2001 regarding the inputs to the Company's economic feasibility study in the form and context in which it is included.

Stanwell Corporation has given its consent to the inclusion of its table of comparative electricity generation costs in the form and context in which it is included.

Ernst & Young has given its consent to the inclusion of its independent accountant's report and to being named as the Company's auditors in the form and context in which it is included or named.

Phillips Fox have given their consent to the inclusion of their native title report and to being named as the Company's solicitors in the form and context in which it is included or they are named.

ABN AMRO Morgans Limited and Tolhurst Noall Limited have given their consent to being named as the Brokers to the Offer in the form and context in which they are named.

Phillip Hutchings and Wycliffe Pty Ltd have given their consent to being named as the Company's corporate advisers.

Computershare Investor Services Pty Limited have given their consent to being named as the share register to the Offer in the form and context in which they are named.

#### 10.8 Legal proceedings

To the knowledge of the Directors, there is no litigation of a material nature pending or threatened which may significantly affect the Company.

#### 10.9 Responsibility statements

None of the persons named in Section 10.7 has authorised or caused the issue of this Prospectus, make, or purport to make, any statement in this Prospectus (other than as specifically provided for in Section 10.7) and to the maximum extent permitted by law, expressly disclaims and takes no responsibility for any part of this Prospectus other than consenting to the inclusion of information as detailed in Section 10.7. In particular, Metasource has had no role in the preparation of the Prospectus and takes no responsibility for the contents of this Prospectus, the merits of the Offer or its preparation.

#### 10.10 Costs of the Offer

If the Offer proceeds, the total estimated costs of the Offer, including legal fees incurred, registration fees, fees for other advisors, Prospectus design, printing and other miscellaneous expenses, will be approximately \$1,530,000. That amount includes \$756,938 which the Company will pay to the Pre-IPO investors described in Section 9.7.

#### 10.11 Documents for inspection


Verified copies of the consents referred to in Section 10.7 will be available for inspection free of charge during business hours after 7 days from lodgement of this Prospectus for a period of not less than 12 months after the date of the lodgement of this Prospectus at the registered office of Geodynamics, Level 2, 349 Coronation Drive, Milton, Qld.

Each Director has given his consent to the lodgement of this Prospectus with the ASIC and has not withdrawn his consent prior to lodgement.

Dated 6 August 2002



Mr Martin Albrecht AC



Dr Bertus de Graaf



Dr Doone Wyborn



Dr Prame Chopra



Mr Robert Flew



Mr Neil Galwey OAM

## 12.1 Technical Terms

<b>Acoustic monitoring network</b>	A number of geophones that listen to the rock movements along fractures during stimulation. The network allows mapping of the location, size and orientation of the underground heat exchanger.
<b>Barrel of oil equivalent</b>	Thermal energy equivalence to 1 barrel of oil (159 litres).
<b>Base-load</b>	Electricity requirement on a 24-hour basis.
<b>Billion</b>	Ten to the ninth power.
<b>Binary geothermal power plant</b>	Power station using heat from the Earth, but where the primary heat energy contained in water is transferred to a secondary fluid via a surface heat exchanger before the secondary fluid is vaporised and passed through a device such as a turbine to drive a generator. The secondary fluid is usually a low boiling point fluid such as pentane or butane, but could also be water.
<b>Casing</b>	The liner of a well, usually made of steel.
<b>Closed loop</b>	A fluid circulation loop entirely confined from the surface environment to avoid pollution. Heat energy is transferred into or out of the loop via a heat exchanger.
<b>Cooper Basin</b>	A geological structure situated in NE South Australia and SW Queensland. The structure consists of sediments including oil and gas-bearing strata and coal beds deposited in layers around 250 to 300 million years ago. Overall, the layers are up to 2000m thick.
<b>Demonstration plant</b>	A power station that is relatively small compared to possible future stations, that is built to show that the process of electricity generation is economically viable.
<b>Economic feasibility study</b>	A study examining the capital and operating costs in comparison with the potential saleable output from a power station.
<b>Engineered reservoir</b>	An underground heat exchanger that forms the heart of the HDR process. The exchanger consists of networks of natural fractures that have been inflated by injecting water at high pressure along the fractures. The inflation permanently opens up the previously closed fractures which become minute voids for flow and heat extraction.
<b>Fossil fuel</b>	A carbon based energy source such as oil, gas or coal recovered from the Earth which is burnt to produce energy and in the process generates carbon dioxide as waste.
<b>Fracking</b>	Colloquial term in the petroleum industry for creating fractures in rock near the bottom of a well. It usually requires pumping a fluid into the well at high pressure.
<b>Fracture</b>	A natural crack in rock.
<b>Geothermal energy</b>	Heat from within the Earth.
<b>Granite</b>	A massive crystalline rock composed mainly of the minerals quartz and feldspar that has solidified from a molten state beneath the surface of the earth. When molten, its temperature is normally higher than 700°C, and during crystallisation multiple networks of contraction joints and fractures develop within the granite.
<b>Green Energy Rights</b>	Green energy rights include renewable energy certificates, carbon credits and any other tradeable thing of value which is created on the generation of electricity from emission free or renewable energy sources.
<b>GW(h)</b>	Gigawatt or 10 <sup>9</sup> watts (hour).

<b>Heat exchanger</b>	Two types of heat exchangers are important in hot dry rock geothermal energy. The underground heat exchanger is made up of natural fractures that can flow water and extract the heat from the surrounding rock. The surface heat exchanger is made of conducting metal, and consists of two compartments in conductive contact. Heat from hot fluid passing through one compartment is transferred to cold fluid passing through the other compartment.
<b>High heat production (HHP) granite</b>	A relatively rare type of granite with slightly elevated abundances of naturally occurring radiogenic elements that provide internal heat over millions of years.
<b>Hot dry rock (HDR)</b>	Buried rock mass that is at high temperature but contains virtually no water. This Prospectus is focused on this source of energy.
<b>Hydraulic Stimulation</b>	A process similar to ‘fracking’, of pumping water at high pressure into the rock via a well. It differs from “fracking” because existing natural fractures are inflated, rather than new fractures formed.
<b>Injection well</b>	A well drilled into the hot rocks down which water is pumped in a closed loop to extract the natural heat of the Earth (see also Production well).
<b>Joint</b>	A natural fracture in rock, most commonly present in granite.
<b>Megawatt</b>	Unit of power equal to $10^6$ watts, either electrical or thermal or 1000kW.
<b>MPa</b>	Megapascal, unit of pressure equivalent to 145 psi (pounds per square inch).
<b>MWe</b>	Megawatts of electricity.
<b>MWh</b>	Unit of energy, megawatt of electricity consumed or produced over 1 hour.
<b>MWt</b>	Megawatts thermal.
<b>Petajoule</b>	Unit of energy equal to $10^{15}$ joules.
<b>Pilot project</b>	Project including the initial underground HDR development and the demonstration power plant.
<b>Production well</b>	A well drilled into the hot rock that receives water after it passes from the injection well through the underground heat exchanger.
<b>Radiogenic</b>	Refers to elements that naturally decay to produce heat.
<b>Renewable electricity</b>	Electricity produced from sources other than from fossil fuels, such as wind, solar and HDR geothermal.
<b>Reservoir</b>	The underground heat exchanger from which the heat is extracted in HDR geothermal. (See also Engineered reservoir).
<b>Stress</b>	The pressure exerting on a point beneath the Earth’s surface. The pressure acts in three dimensions resolvable into three axes, of minimum, maximum and intermediate value.
<b>Superheated water</b>	Water under pressure that remains a liquid even though it is above boiling point at atmospheric pressure.
<b>Tectonic forces</b>	The stresses relating to the movements of large plates on the Earth floating on the plastic mantle and giving rise to continental drift and collision.



<b>Turbine</b>	A device that receives gas under high pressure with blades that cause the rotor in the turbine to spin at high speed. The rotation is transferred to an alternator to generate electricity.
<b>Underground heat exchanger</b>	Forms the heart of the HDR process. The heat exchanger consists of networks of natural fractures that have been inflated by injecting water at high pressure along the fractures. The inflation permanently opens up the previously closed fractures which become minute voids for flow and heat extraction (see Engineered reservoir).
<b>Vibroseis seismic survey</b>	A process of using large weights at the surface that vibrate and send signals into the Earth to map its structure.
<b>Zero emissions</b>	Absence of gaseous emissions into the atmosphere that pollute or add to the greenhouse effect.

## 12.2 General expressions

<b>ABB</b>	Asea Brown Boveri (a company).
<b>Applicant</b>	A person or entity who or which applies for Shares pursuant to this Prospectus.
<b>Applications</b>	A valid application made to subscribe for a specified number of shares offered by this Prospectus.
<b>Application Form</b>	The application form attached to or accompanying this Prospectus.
<b>ASIC</b>	Australian Securities & Investments Commission.
<b>ASX</b>	Australian Stock Exchange Limited.
<b>Board</b>	The board of Directors of the Company.
<b>CHESS</b>	Clearing House Electronic Subregister System.
<b>Closing Date</b>	30 August 2002 or such other date as determined by the Directors.
<b>Company</b>	Geodynamics Limited ABN 55 095 006 090.
<b>Cooper Basin Project</b>	The Company's HDR project in the Cooper Basin to develop a base-load large-scale Binary geothermal power plant to produce electricity.
<b>CRIEPI</b>	Central Research Institute of the Electric Power Industry (Japan).
<b>CSIRO</b>	Commonwealth Scientific and Industrial Research Organisation ABN 41 687 119 230.
<b>Directors</b>	The directors of the Company.
<b>EL</b>	Exploration Licence (New South Wales).

<b>Exposure Period</b>	The period required under Section 727(3) of the Corporations Act.
<b>GEL</b>	Geothermal Exploration Licence (South Australia).
<b>IPO</b>	Initial public offering.
<b>Listing Rules</b>	The official listing rules of the ASX.
<b>MIT</b>	Massachusetts Institute of Technology (USA).
<b>NEDO</b>	New Energy and Technology Development Organisation (Japan).
<b>Offer</b>	The invitation to subscribe for up to 23 million Shares with provision for oversubscription of up to 8 million Shares made by the Company under this Prospectus.
<b>Offer Price</b>	50 cents or \$0.50 per share.
<b>Official List</b>	The official list of ASX.
<b>Options</b>	Options in the Company.
<b>PIRSA</b>	Primary Industries and Resources South Australia .
<b>Pre-IPO Investors</b>	Means the shareholders referred to in Section 1.8 including, Metasource Pty Ltd, CVC REEF Limited and ANU.
<b>Prospectus</b>	This document including any supplementary or replacement Prospectus.
<b>Public Offer Shares</b>	Shares offered under the general offer under section 2.1 of this Prospectus.
<b>R&amp;D START</b>	Commonwealth Government grant scheme administered by AusIndustry.
<b>Renewable Energy Certificates (RECs)</b>	Certificates issued under the Renewable Energy (Electricity) Act 2000 (Cth) to an energy generator that generates renewable energy, which are tradeable for a commercial value.
<b>SAGE</b>	South Australia Geothermal Energy Pty Ltd ACN 097 124 653.
<b>SCH</b>	The Securities Clearing House administered by ASX.
<b>Share</b>	An ordinary share in the capital of Geodynamics Limited.
<b>SKM</b>	Sinclair Knight Merz Limited (a New Zealand company).
<b>Tenements</b>	The tenements held by the Company, the details of which are set out in this Prospectus.



# Guide to Completing the Application Form

**A**

Enter the number of Shares you wish to apply for. The application must be for a minimum of 4000 Shares. Applications for greater than 4000 Shares must be in multiples of 1000 Shares.

**B**

Enter the amount of Application Monies. To calculate the amount, multiply the number of Shares applied for by the price per share.

**C**

Enter the full name you wish to appear on the register. This must be either your own name or the name of a company. Up to 3 joint Applicants may register. You should refer to the table below for the correct forms of registrable name. Applications using the wrong form of name may be **rejected**. Clearing House Electronic Sub-Register System (CHES) participants should complete their name and address in the same format as that are presently registered in the CHES system.

**D**

Enter your postal address for all correspondence. All communications to you from the Share Registry will be mailed to the address as shown. For joint Applicants, only one address can be entered.

**E**

Enter your Tax File Number (TFN) or exemption category or Australian Business Number (ABN). Where applicable, please enter the TFN or ABN for Applicant 1 and Applicant 2 only. Collection of TFNs and ABNs is authorised by taxation laws. Quotation of your TFN is not compulsory and will not affect your Application. However, if no TFN or ABN is quoted your dividends may be taxed at the highest marginal tax rate plus the Medicare Levy.

**F**

Geodynamics Limited will apply to the ASX to participate in CHES, operated by ASX Settlement and Transfer Corporation Pty Ltd, a wholly owned subsidiary of Australian Stock Exchange Limited. In CHES, the Company will operate an electronic CHES subregister of shareholdings and an electronic issuer sponsored subregister of shareholdings. Together the two subregisters will make up the Company's principal register of shares. The Company will not be issuing certificates to applicants in respect of shares allotted.

If you are a CHES participant (or are sponsored by a CHES participant) and you wish to hold securities allotted to you under this Application in uncertificated form on the CHES subregister, enter your CHES HIN. Otherwise, leave the Section blank and on allotment, you will be sponsored by Geodynamics Limited and a Securityholder Reference Number (SRN) will be allocated to you.

If the Applicant has received an electronic prospectus, this application form relates to the invitation by the Company to subscribe for 23,000,000 Shares at \$0.50 each with a provision for oversubscriptions of up to 8,000,000 Shares made under a Prospectus dated 6 August 2002 which was lodged with ASIC on that date. The Shares will only be issued on receipt of an Application Form issued together with the electronic prospectus. The expiry date of the Prospectus is 13 months after the date of the Prospectus. While the Prospectus is current, the Company or any licensed financial advisor who has provided an electronic copy of this Prospectus will give you paper copies of the Prospectus including any supplementary document or Prospectus and Application on Request and without Charge

## Correct forms of Registrable name

Note that **ONLY** legal entities are allowed to hold Shares. Applications must be in the name(s) of natural persons, companies or other legal entities acceptable to the Company. At least one full given name and the surname is required for each natural person. The name of the beneficial or any other registrable name may be included by way of an account designation if completed exactly as described in the examples of correct forms of registrable names below.

**G**

## Payment

Make your cheque or bank draft payable to "**Geodynamics Limited - share offer**" in Australian currency and cross it "Not Negotiable". Your cheque or bank draft must be drawn on an Australian Bank.

Complete the cheque details in the boxes provided. The amount must agree with the amount shown in box "B".

Sufficient cleared funds should be held in your account, as cheques returned unpaid are likely to result in your Application being rejected.

Pin (do not staple) your cheque(s) to the Application Form where indicated.

**H**

Enter your telephone number. This will assist us to contact you if there are any problems with your application.

**BEFORE COMPLETING THE APPLICATION FORM THE APPLICANT(S) SHOULD READ THE PROSPECTUS TO WHICH THE APPLICATION RELATES. BY LODGING THE APPLICATION FORM WITH YOUR CHEQUE FOR THE APPLICATION MONIES, THE APPLICANT(S) AGREES THAT THIS APPLICATION IS FOR SHARES IN GEODYNAMICS LIMITED UPON AND SUBJECT TO THE TERMS OF THE PROSPECTUS, AGREES TO TAKE ANY NUMBER OF SHARES EQUAL TO OR LESS THAN THE NUMBER OF SHARES SHOWN IN BOX A THAT MAY BE ALLOTTED TO THE APPLICANT(S) PURSUANT TO THE PROSPECTUS. I/WE DECLARE THAT ALL DETAILS AND STATEMENTS MADE ARE COMPLETE AND ACCURATE AND AGREE TO BE BOUND BY THE CONSTITUTION OF GEODYNAMICS LIMITED. IT IS NOT NECESSARY TO SIGN THE APPLICATION FORM.**

## Lodgement of Applications

Return the Application Form with cheque(s) attached to:

Computershare Investor Services Pty Limited  
Level 27  
345 Queen Street  
Brisbane QLD 4000  
or  
GPO Box 523  
Brisbane QLD 4001

Application Forms must be received at the office of Computershare Investor Services Pty Limited no later than 5.00pm AEST time on Friday 30 August 2002.

Type of Investor	Correct Form	Samples of Incorrect Form
Individual • Use given names, not initials	John Alfred Smith	J A Smith
Company • Use company title, not abbreviations	ABC Pty Ltd	ABC P/L ABC Co
Trusts • Use trustee(s) personal name(s), • Do not use the name of the trust	Janet Smith <Janet Smith Family A/C>	Janet Smith Family Trust
Deceased Estates • Use executor(s) personal name(s), • Do not use the name of the deceased	Michael Smith <Est John Smith A/C>	Estate of Late John Smith
Partnerships • Use partners' personal names, • Do not use the name of the partnership	John Smith and Michael Smith <John Smith & Son A/C>	John Smith & Son
Clubs/Unincorporated Bodies/Business Names • Use office bearer(s) personal name(s), • Do not use the name of clubs etc.	Janet Smith <ABC Tennis Association A/C>	ABC Tennis Association
Superannuation Funds • Use name of trustee of fund, • Do not use the name of the fund	John Smith Pty Ltd <Super Fund A/C>	John Smith Pty Ltd Superannuation Fund

• Put the name(s) of any joint applicant(s) and/or account description using <> as indicated above in designated space(s) on the Application form.



**GEODYNAMICS**  
LIMITED