

SOUTH AUSTRALIA'S 'TOP 10 DIVIDENDS' FROM THE DET CRC

\$6M
Invested by SA
Government

The Deep Exploration Technologies Cooperative Research Centre (DET CRC) is one of 33 CRCs nationally and one of four headquartered in South Australia. DET CRC is developing transformational technologies for successful mineral exploration through deep, barren cover rocks. With ~\$153M of cash and in-kind funding, DET CRC is the world's best supported independent research initiative in mineral exploration. The South Australian Government has been a key supporter of DET CRC which will return the following 'Top 10 Dividends' to the State¹.

1. Investment of ~\$61M cash and ~\$93M in-kind on research in mineral exploration technologies from DET CRC's Adelaide-based head office, which is embedded with global drilling supplier, Boart Longyear, at Adelaide Airport.
2. ~\$31M cash expenditure in South Australia generating ~265 FTE years of employment in mining services and advanced manufacturing (~120 directly funded and an estimated 145 indirectly funded through the purchase of goods and services).
3. The Brukunga Drilling Research & Training Facility: a unique, fully-equipped and staffed drill site dedicated to testing new drilling technologies, available to DET CRC and other parties.
4. A major program of vocational education and tertiary research in mineral exploration.
 - 407 driller's offsidiers trained to-date at the Brukunga Drilling Research & Training Facility.
 - 20 PhDs with sponsorship to the value of \$1.275M at the University of Adelaide. Seven PhD completions to-date.
 - Three completed coursework Masters research projects and 39 completed Honours research projects at the University of Adelaide.
5. Collaboration in research in mineral exploration between research organisations, government, suppliers and the following South Australian-based exploration/mining companies: Heathgate, Investigator Resources, Minotaur Exploration, Monax Mining, OZ Minerals & Rex Minerals.
6. Strengthening the ecosystem of the South Australian METS sector (mining equipment, technology and services companies). In excess of 200 South Australian companies have collaborated with or supplied services to DET CRC and been exposed to DET CRC's major sponsors².
7. Five conferences for national and international delegates in Hahndorf with an average of 150 attendees at each, providing significant benefits for numerous local suppliers³. Attendees include decision-makers such as exploration managers for major miners who are interacting with the South Australian mineral exploration and METS ecosystem.
8. Involvement of 20 South Australian-based suppliers in fabrication of the world's first coiled tubing drill rig for mineral exploration in South Australia which is due for completion mid-2016⁴. First trials due in South Australia 2016-2017. The coiled tubing rig promises drilling at one sixth the cost of conventional diamond drilling.
9. A unique collaborative drilling program of 14 holes and ~8,000 metres from August 2015 to April 2016 involving the Geological Survey of South Australia, DET CRC, two mineral exploration companies, five supplier companies and three research organisations. The MSDP has leveraged a \$2.5M cash contribution from the South Australian Government into an ~\$8M cash and in-kind program that is using in excess of 100 South Australian-based suppliers⁵. The Mineral Systems Drilling Program is:
 - uncovering new mineralised provinces in the Gawler Craton
 - uncovering the new technologies required to explore beneath barren cover
 - building collaboration between junior explorers, METS sector, government and research organisations in South Australia
10. DET CRC's new technologies of cheaper drilling and associated real-time sensing are ideally suited to, indeed designed for, more successful exploration in the 80% of South Australia where prospective geology is obscured by barren cover rocks. South Australia's greatest dividend from DET CRC will be in the discovery of Tier 1 mineral deposits through the commercial deployment of DET CRC's technologies⁶.

\$31M
Cash
expenditure
in SA

265
FTE years of
employment
in SA

\$8M
Mineral Systems
Drilling Program

407
Drillers trained
through the
Brukunga DRTE

200+
METS sector
service companies
utilised in SA

NEW
technologies for
discovery of
mineral deposits
in SA

DET CRC PARTICIPANTS



DET CRC AFFILIATES

SUPPLIERS: BASF, Bureau Veritas, Drillco, Epslog, Flexidrill, Globaltech, HiSeis, Leapfrog, Moog, Sandvik, Training Prospects and Wassara
JUNIOR EXPLORERS: ABM Resources, Investigator Resources, Heathgate, Kingston Resources, Minotaur Exploration, Nautilus Minerals and Paladin Energy
GEOLOGICAL SURVEYS: Geoscience Australia and Geological Surveys of NSW, NT, SA, VIC and WA

The more than 200 South Australian companies that have collaborated with DET CRC have benefitted not only as research partners and/or suppliers to DET CRC, but also in their exposure to the major companies that sponsor DET CRC, for example, global miners Anglo American, Barrick Gold, BHP Billiton & Vale and global suppliers BASF, Boart Longyear, Bureau Veritas, Imdex, Moog, Sandvik & Olympus.

1 INVESTMENT IN DET CRC 2010-2018 **SOUTH AUSTRALIAN GOVERNMENT**

DET CRC Head Office in SA (2010-2014)	\$1,000,000
Embedded Researcher Grant (2011-2013)	\$127,000
PSRF Grant for Brukunga Facility (2011-2013)	\$774,000
MIPO Real Time Drill Site Project (2014-2017)	\$350,000
Mineral Systems Drilling Program (2015-2016)	\$2,500,000
CRC Assistance Program (2015-2017)	\$600,000
Job Stimulus Grant (2016-2017)	\$500,000
TOTAL	\$5,851,000

ALL SOURCES OF DET CRC INCOME

South Australian Government	\$5,851,000
Australian Government	\$29,664,000
Mining Industry and Other	\$25,649,000
TOTAL	\$61,164,000

2 THE FOLLOWING ARE EXAMPLES OF SOUTH AUSTRALIAN-BASED COMPANIES THAT HAVE COLLABORATED WITH DET CRC AND ITS SPONSORS.

MINERAL EXPLORATION

Heathgate
 Investigator Resources
 Minotaur Exploration
 Monax Mining
 OZ Minerals
 Rex Minerals

METS

Adelaide Hydraulics
 Alfa Engineering
 AMG Surveys
 Central Diesel
 Custom Fluidpower
 GAA Wireline
 Haines Surveys
 Hard Core Diamond Products
 Lasercut Solutions
 M.A.C.S.S.
 Metzke
 Motion Industries
 Nairne Engineering
 Nobles
 SAGE Automation
 Sandvik
 Schramm Australia
 Somerled Engineering

METS (CONTINUED)

Southern Steel Supplies
 Stewart Geophysical
 Wellsun Engineering
 Westernex
LEGAL & ACCOUNTING
 Finlaysons
 Lee Green
 Phillips Ormonde Fitzpatrick

MARKETING

Daylight Breaks
 EmbroidMe
 Fuller
 On Creative
 R.M. Williams

VOCATIONAL TRAINING

Australian Training Alliance
 Training Prospects

IT

Adelaide Cloud
 ASTC
 Innodev
 Morton Blacketer
 SRA

3 THE FOLLOWING SOUTH AUSTRALIAN-BASED COMPANIES HAVE ACTED AS SUPPLIERS TO DET CRC'S CONFERENCES AT HAHNDORF.

Adelaide Hills Conferencing	Kwik Kopy
AV Style	Lofty Coaches
Bird in Hand Winery	Longview Winery
Country Fire Service	Manna of Hahndorf
German Arms Hotel	Renniks
Golding Winery	Staging Connections
Hahndorf Inn	The Haus Hahndorf
Hahndorf Resort	The Party Company
Kanga Coachlines	TK Print
Kirkbee	

4 THE FOLLOWING SOUTH AUSTRALIAN-BASED COMPANIES HAVE BEEN INVOLVED IN FABRICATION OF DET CRC'S COILED TUBING DRILL RIG.

Adelaide Inspection Services	Interlloy
Adelaide Profile Services	Blackwoods
Arentz Engineering	James Walker Australia
BL Shipway (RYCO)	OmniLogix
CBC Bearings	RC Williams
Century Engineering	Rexroth
Cummins	Roto Oil
Dotmar	Sonnex Laser
Hallite Seals	Stauff Corporation
IFM	UES International

5 THE MINERAL SYSTEMS DRILLING PROGRAM IS A COLLABORATION OF THE FOLLOWING PARTICIPANTS AND AFFILIATES OF DET CRC: GEOLOGICAL SURVEY OF SOUTH AUSTRALIA, KINGSTON RESOURCES, MINOTAUR EXPLORATION, BOART LONGYEAR, BUREAU VERITAS, EPSLOG, GLOBALTECH, IMDEX, OLYMPUS, CSIRO, UNIVERSITY OF ADELAIDE AND CURTIN UNIVERSITY. IT HAS UTILISED MORE THAN 100 SOUTH AUSTRALIAN-BASED SUPPLIERS INCLUDING THE FOLLOWING.

R.J. Michael Proprietors	Northern Air Conditioning
Elders Rural Streaky Bay	Rex Airlines
Electrical Discounter	Standpipe Motor Inn
Euro Exploration	Swagabout Tours
Gawler Ra. Aboriginal Group	Teitzel and Partners
Investigator Resources	Total Tools Wingfield
Kimba IGA	Transpacific
M&M Electrical Mount Barker	Whyalla Foreshore Motor Inn
Mitre 10 Streaky Bay	Wudinna Hardware
Nature Foundation SA	Wudinna Hotel

6 PROSPECTING DRILLING WILL UTILISE DET CRC'S CHEAP COILED TUBING DRILLING AND REAL-TIME SENSING TECHNOLOGIES IN A CONTINUOUS DRILLING PROGRAM OF MULTIPLE HOLES THAT PROGRESSIVELY VECTOR TOWARDS DEPOSITS HIDDEN BENEATH BARREN COVER (AS OPPOSED TO SINGLE, EXPENSIVE HOLES WITH A LOW PROBABILITY OF SUCCESS THAT DO NOT HELP VECTOR TOWARDS DEPOSITS).

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