

# Green Rock Energy Ltd

Developer of Geothermal Energy Projects

December 2006



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# Investment Highlights

- Quality geothermal assets with proximity to markets and infrastructure
- Adaptation of known technology to viable sites
- Demand for low emission, renewable, long life, base load power generation
- Minimal environmental footprint and carbon credits
- Strong experience in below ground technology
- Strong and experienced Board
- World Bank Insurance to mitigate risk
- Growth through development, exploration and acquisition
- Modest current market capitalisation

# Corporate Overview



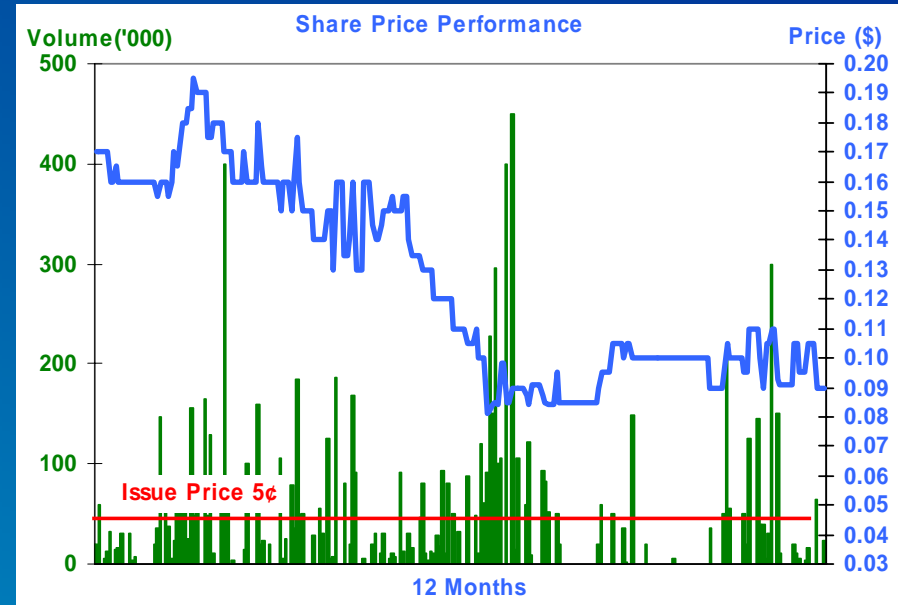
<b>SHARES ON ISSUE:</b>	<b>67.1m</b>
Listed Option (expire 31/12/06)	22.9m
Unlisted (director) Options	2.5m
Other Unlisted Options	3.5m
Share Price	9¢
12 Month Share Price Range	8.1¢ - 19.5¢
Market Cap	\$5.7m
Cash	\$220,000
Debt	Nil

## SIGNIFICANT SHAREHOLDERS:

Perilya Limited	25.8%
Simon Ashton	12.6%
Adrian Larking	11.8%
Top 20 shareholders	68.1%
No of shareholders (31/08/06)	505

## BOARD OF DIRECTORS:

Adrian Larking	Managing Director
Alan Knights	Executive Director
Scott Spencer	Non Executive Director
Hugh Warner	Non Executive Director



# Green Rock Energy Ltd

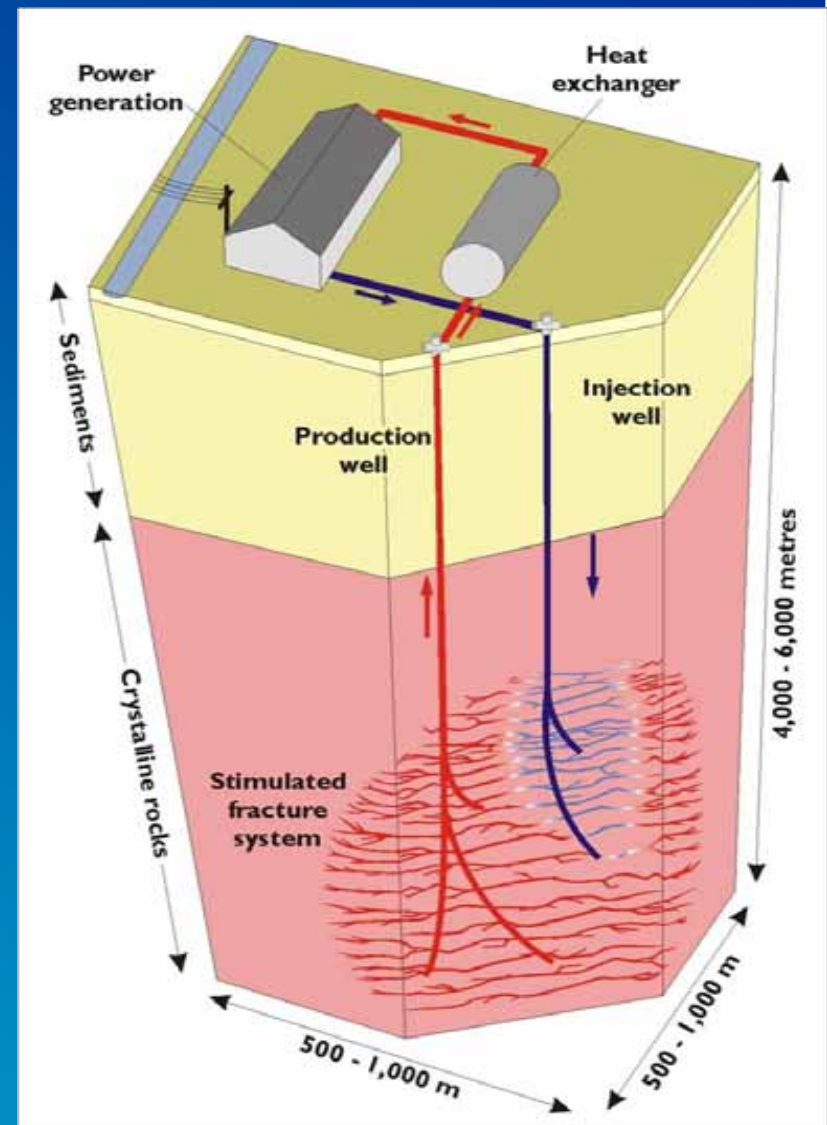
## Who we are



- Developer of geothermal energy projects
- Geothermal energy is the natural heat of the earth which is commercially exploited in two ways:
  1. Conventional - where heat is extracted from hot water trapped underground in natural reservoirs. Hot water or steam is forced to the surface under its own pressure and fed to a turbine in a power plant to produce electricity
  2. Enhanced geothermal systems utilise hot dry rocks with no natural reservoirs. Hot water is recovered by pumping water from the surface through engineered fractures that enable heat transfer.
- Expertise in below ground technology
  - Reservoir creation and management
- Developer of geothermal projects with near term production potential
  - Capability to identify & take projects from green-field to production
- Major projects located near Olympic Dam in South Australia and Zala County in Hungary (Ortahaza project)

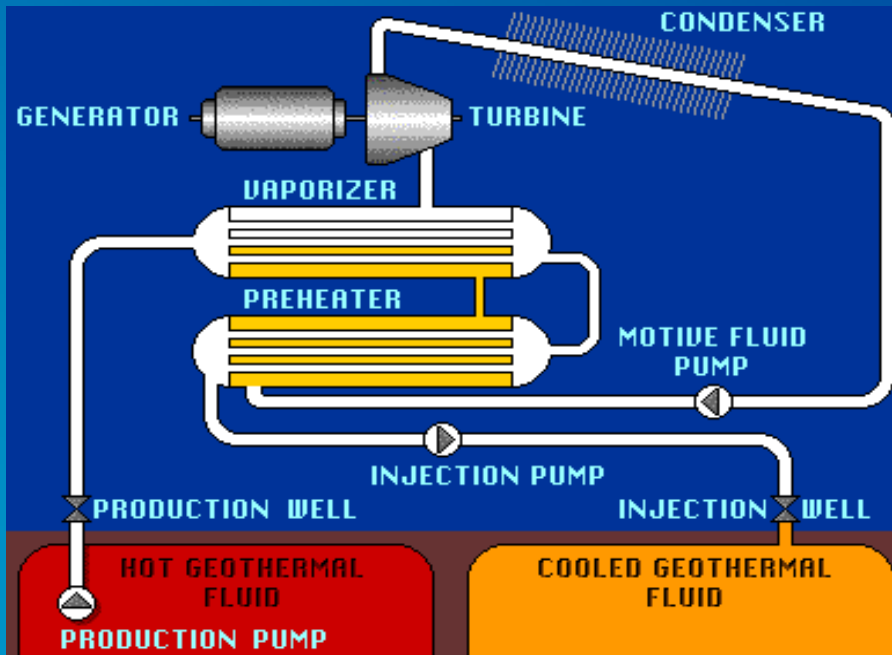
# Geothermal Energy – an overview

- Conventional geothermal power is extracted from water that has seeped over time into fractured or porous hot volcanic rocks
- Over 100 geothermal power stations are operating throughout the world
- Natural fracturing in hot volcanic rocks and granites can be enhanced by hydraulic fracturing derived from the petroleum industry i.e. Enhanced Geothermal Systems (“EGS”)
- EGS generate power by extracting heat from water pumped under pressure through hot fractured rocks at depth



# Geothermal Energy – an overview

## Conventional Power Plant Technology



BINARY CYCLE PLANTS

EXAMPLE:



100 MWE MOKAI, NEW ZEALAND

Enhanced Geothermal Systems use conventional above ground power plant technology and take, to the next step, the tapping of the below ground heat source

# Geothermal Energy – Advantages

## Technology has made Enhanced Geothermal Systems Viable

- Power Plants
  - proven and reliable -155 binary plants worldwide
  - can operate at lower temperatures
  - modular and can be commissioned quickly
- Subsurface
  - drilling greater distances, depths, temperatures & pressures
  - down hole equipment
  - increasing fracture stimulation experience
  - micro-seismic monitoring

### EXAMPLE:



# Enhanced Geothermal Energy

## Risks / Advantages



Conventional Geothermal Energy technology is well proven

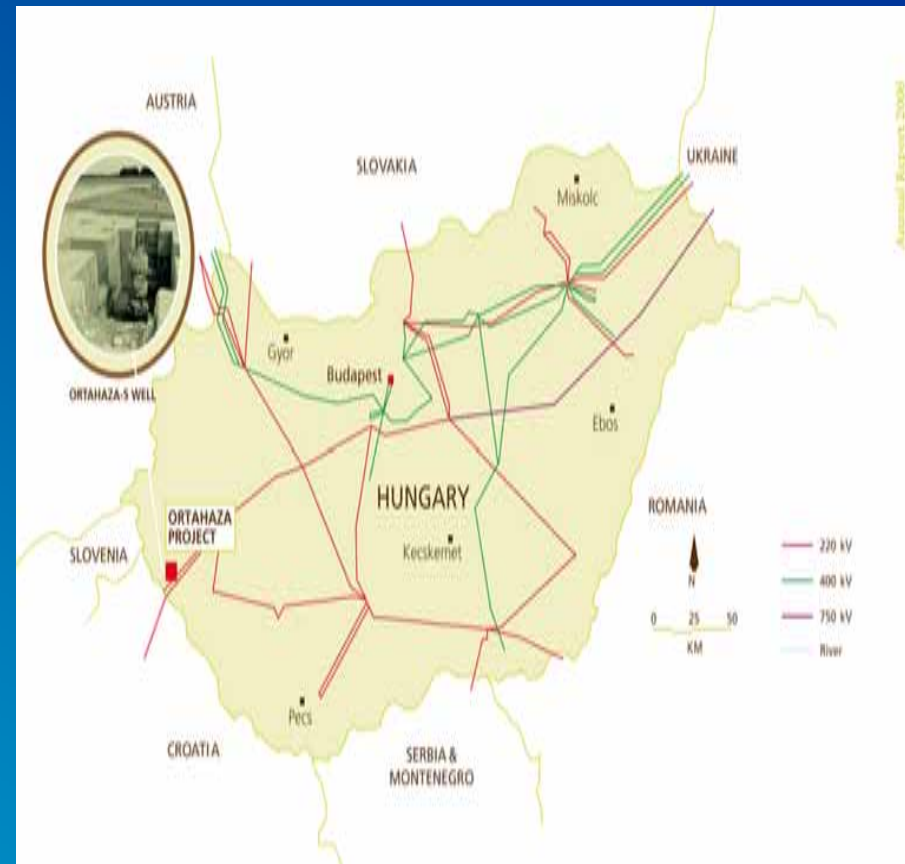
- Geothermal Energy – Advantages
  - Renewable energy – access to carbon credits
  - Base load, long life, power source – high availability >95%
  - Modular power plant – progressive construction and maintenance
  - 50,000 times energy of known world oil & gas reserves (US Dept Energy)
  - Technology driving costs down c.f. fossil fuel prices increasing
  - Attractive to green/ethical funds
  - Geothermal power plants have a small land requirement
  
- Enhanced Geothermal Systems – Potential Risks
  - Fracture stimulation – water circulation flow rate

# Hungary – Geothermal Energy Project



## Background

- Joint Operating Agreement (“JOA”) between Green Rock Energy (32%), Hungarian oil and gas player MOL (36%) and Icelandic geothermal consulting company Enx hf (32%)
- Testing existing hydrocarbon wells, owned by MOL, for the generation of geothermal energy in Hungary
- First project (Ortahaza) has commenced, with two wells (a production and an injection well) being prepared for water flow rate testing.
- Following the evaluation of the first project, the aim is to test other prospective hydrocarbon wells for their geothermal potential



# Hungary – Geothermal Energy Project



## First (Ortahaza) Project – Objective

### Project Objective:

- Test water flow rate from one of two existing unused petroleum wells (Ortahaza 3 and 5) to determine the form of the development project
  - A flow rate less than 2,200 m<sup>3</sup>/day provides direct heat for industry and agriculture
  - A flow rate above 2,200 m<sup>3</sup>/day enables development of both direct heat and a 2-5 MWe power plant
- Green Rock's share of cost – Approx A\$2.1m
- Success will lead to expansion from additional drilling at Ortahaza and elsewhere in Hungary
- Capital development – 70% debt/30% equity

# Hungary – Geothermal Energy Project



## Why Hungary ?

- Commercially attractive
  - Preferential grid access for renewable energy
  - Subsidized electricity price - €84 / MWh
  - Power Purchase Agreement
  - Direct heat market – industry & agriculture
  - Existing Wells
  - Potential for many projects
  - JOA with major international power & geothermal companies
- Limited risk
  - Using existing wells
  - Known temperature and geothermal water quality
  - Approval of World Bank Geological Risk Insurance for Hungarian project
    - US\$3.7 million
    - Major costs refunded if flow rates do not achieve desired results
    - Reduces financial risk associated with the project
    - 1<sup>st</sup> project funded by GeoFund and will be the only one for Hungary

# OD Geothermal Energy Project

## Background



- Suitable geology & geothermal regime
- Proximity to local & national markets
  - minimal transmission costs
- Logistical advantages
  - proximity to infrastructure, town, services
  - all-weather airport, scheduled flights
- Ability to significantly reduce drilling costs
- Enables staged development
- 500 MWE plus potential
- Most economically prospective geothermal project in Australia
- A\$20m for project evaluation – seeking joint venturer (energy co) to farm-in plus Government grant
- Electricity companies will provide funds post evaluation



# OD Geothermal Energy Project

## Recent Activity



### Drilled & logged Blanche No1 well to 1,935m:

- Sited 5km from power grid on seismic line
- Evaluated temperatures in Blanche No. 1 & SAP 1 & others
- Cored 1,216 m of granite

### Which has confirmed:

- Suitable temperatures
- Homogeneous granite with natural fracturing
- World class size

### The Project has the potential for the development of a geothermal electricity power plant that is:

- World class size - 500 MWe
- Long Life - 40 years+
- Low Cost
- Provides access to carbon credits



# Green Rock Energy Limited

## Project Timetable



### Next 12 months:

- **Hungary Project**

- Complete water circulation testing
- Commence product design and development

- **Olympic Dam Project**

- Complete mini-fracking of Blanche 1 exploration well

- **Other:**

- Second and third Hungary projects
- evaluation of other geothermal opportunities

# Use of Funds



ACTIVITIES	\$MILLION
<b>Hungarian Project:</b>	
- Existing and proposed well evaluation	2.30
<b>Olympic Dam:</b>	
- Mini fracture stimulation and further drilling	0.40
<b>New Opportunity Investment:</b>	0.60
<b>Administration/Working Capital/Costs</b>	0.72
<b>TOTAL</b>	<b>4.02</b>

# Proposed Issues



- Share Placement of 6.7 million at 5¢ to raise \$0.35 million under 15% placement capacity with attaching 1 for 2 option. Placement shares eligible to participate in follow-on Rights Issue
- 1 for 1 renounceable rights at 5¢ to raise \$3.7 million with attaching 1 for 2 option
- Option strike price of 10¢, expiring 18 April 2008 (options will be listed)

	SHARES	OPTIONS	\$
Shares on issue*	67,087,607		
Placement	6,700,000	3,350,000	\$335,000
<b>Total Shares entitled to participate in Rights Issue</b>	<b>73,787,607</b>		
<hr/>			
Rights Issue 1:1	73,787,607	36,893,803	\$3,689,380
<b>TOTAL</b>	<b>147,575,214</b>	<b>40,243,803</b>	<b>\$4,024,380</b>

- GRK also has on issue 22,932,465 listed options maturing 31 December 2006 (during the Rights Issue) at a strike price of 20¢ per share, 2,500,000 unlisted options, held by two directors, maturing 21 November 2009 at a strike price of 25¢ per share and 3,500,000 unlisted options maturing 28 November 2008 at a strike price of 15¢ per share.
- Net cash on completion of issue circa \$4.2 million

# Timetable

INDICATIVE TIMETABLE	2006/2007
Trading Halt	After trading 11 December
Issue announced	14 December
Placement settled	20 December
Ex-date, rights trading starts	21 December
Trading of rights closes	19 January
Closing date	29 January

# Summary



- Quality geothermal assets with proximity to markets and infrastructure
- Low political risk environments
- High potential upside
- Adaptation of known technology to viable sites
- Demand for low emission, renewable, long life base load power generation
- Minimal environmental footprint and carbon credits
- Strong experience in below ground technology
- Strong and experienced Board
- World Bank Insurance to mitigate risk
- Growth through development, exploration and acquisition
- Management focus on generating early cash-flow