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New Zealand Geothermal Association (NZGA) News - March 2013

Dear Members and friends, welcome to this issue of the NZGA Newsletter!

President's Report WHAT'S IN THIS ISSUE? Welcome to this new-look newsletter, the first for 2013. Welcome • Lead Story The NZGA is up and running. Kevin McLoughlin is our new Treasurer, and Jane **Geothermal News** Brotheridge is the new Secretary, so thanks to the newbies on the Board for EO and Board Update taking a lead. Also thanks to Tricia Scott and Gina Rangi who have recently **Regular Features** finished on the Board, and to Marcel Manders and Andy Bloomer who have Interest Groups respectively stepped down from the Treasurer and Secretary role. Also NZGA Webinars 2013 thanks to you as individual, Corporate and Institutional members for prompt Events/Training; Industry Papers payment of subscriptions, which means we can resource many of the things Membership we want to do for the industry. This is a very busy time across many fronts, and there are links to some of these activities below. Nationally, there are currently three geothermal power stations at late stages of construction or commissioning. From a regulatory perspective, the Regional Policy Statements for all regions containing high temperature geothermal systems are being revised or finalised, and NZGA has been involved at the early stages of all of these. The Association has just made a submission on the proposal for a new Transmission Pricing Methodology that could otherwise have negative implications for current and future investors in generation. Internationally, Mighty River Power has taken a more direct holding in its USA and Chile investments. New Zealand consultants are active in projects around the World. The NZGA continues to work with Geothermal New Zealand as we seek to open markets and our share of the 'pie' internationally for our consultants, trainers, manufacturers, constructors and service companies. NZGA and a number of companies have just been at a special workshop organised by Ministry of Foreign Affairs and Trade held in Taupo to enable dialogue between New Zealand and Japanese interests on possible future geothermal collaboration - part of the effort with Geothermal New Zealand to "grow the pie". This will be followed by the Pacific Energy Summit in Auckland organised by NZ Trade and Enterprise in which investors will meet with Pacific Island project proponents and representatives of the respective Pacific governments. Admittedly there are few geothermal projects ready for funding, but this will be an opportunity to present company capabilities to investors not readily accessible otherwise.

Rapid change is coming but the NZGA will continue to promote the reasonable and appropriate use of geothermal with a focus on New Zealand and international linkages.

I hope you find many points of interest in this new and shortened Newsletter.

Spence McClintock President, New Zealand Geothermal Association.

LEAD STORY: Going, going, gone? – Buying MRP shares and looking back at Contact Energy ones

While the web-site for MRP shares has seen heavy traffic, the jury is out on how they will sell - Pre-registration for MRP shares guarantees the buyer the right to claim 25% more shares than for those who don't preregister but with strong opposition to the sales and the fact that they are to be listed on the Australian stock exchange (making them easily accessible to AU buyers) the jury is out on the question of how popular the shares might be. Several commentators are saying average kiwi's will find the opportunity beyond their reach with others noting the high levels of \$ in bank deposits signaling interest at a level potentially greater than that shown for Contact Energy shares in 1999.

Of course Contact Energy and TrustPower are the other electricity generator-retailers shares on the market for now. For those with an interest in geothermal energy, Contact is the other major developer/operator of geothermal resources in New Zealand. The history of the Contact Energy share price gives some feel for the trading environment into which MRP shares will be floated. From the graph of Contact share price this has been fairly flat since 2009 (see the <u>Contact web-site chart</u> and this <u>FinData chart (use the 10 year period option</u>)). TrustPower shares have shown similar recent flatness though there have clearly been increased share prices over the last year (see the <u>FinData Chart</u> (use the 10 year and 1 year period options)).

For advice on shares, please consult your own broker.

Update from Geothermal New Zealand

In a recent update, Geothermal New Zealand ('GEONZ') reports that it's well on the way to becoming a fully established Association with membership applications coming in and interest growing. The update includes notes on:

Recent Events:

- NZ Geothermal Workshop in November 2012 the event attracted over 230 delegates; the 2013 event will be in Rotorua and GEONZ will seek a bigger role.
- World Geothermal Congress 2015 Currently scheduled to be held in Melbourne.
- Visits to NZ Chilean, PNG and PGE visits.
- Geodynamics project in the Solomon Islands keen to engage services and resources from New Zealand.
- **IRENA** Mike Allen (on behalf of MFAT) attended an IRENA event in January this year with a view to exploring from an NZ point of view the opportunities that might exist for us through IRENA. The first geothermal engagement has been participation in an IRENA Andean workshop held in Reykjavik.

2013 Opportunities are noted as follows:

- Icelandic Geothermal Conference (Reykjavik 5th to 8th March) A three day meeting looking at exploration and development of geothermal resources; understanding the Icelandic clusters. Mike Allen and Hagen Hole have attended as invited speakers.
- Japanese New Zealand Geothermal Workshop (Taupo 18th to 20th March) The workshop was co-hosted by NZ MFAT and the Japanese Foreign Ministry. MFAT organised the event in conjunction with NZTE and Geothermal NZ. All parties considered strengths of the respective countries across the geothermal value chain with a view to greater future cooperation. For more details see <u>here</u>.
- The Pacific Energy Forum (24th to 27th March in Auckland) This event has joint NZ EU sponsorship. Further details here (<u>http://www.pacificenergysummit2013.com</u>). The event brings together key players in the renewable energy market and investors that we would otherwise be unlikely to see in NZ. There will be opportunities to display materials and limited opportunities for presentations and small groups. Please register to attend. GEONZ will have a booth and is happy to carry material for members on the stand.
- Chilean Geothermal Congress (Santiago April 11th & 12th) GEONZ will have a booth at this event. Advise GEONZ if you are intending to travel to the event.
- **Trade Mission to Indonesia** This has been initiated by Export NZ and the ASEAN New Zealand Combined Business Council. More details <u>here</u>.
- **Other events** several other 'geothermal' events will be listed on the GEONZ web-site (coming soon).

For a full report on GEONZ activities until Feb 2013 please contact Mike Allen at mike.allen@xtra.co.nz.

GEOTHERMAL NEWS

New Zealand News

Contact half year results come out - Contact has delivered a solid half year performance despite weakness in the wholesale electricity market and sustained competition in the retail market. Chief Executive Dennis Barnes says that Contact's results show the benefits of its diverse fuel and asset portfolio and competitive customer offers. Mr Barnes said that this clearly demonstrates Contact's increasing ability to perform and respond to a range of market conditions.

Progress on building Contact's Te Mihi power station continues. Steamfield work is largely complete and the first stages of commissioning on the power station has commenced. The completion of Te Mihi will bring to an end a greater than \$2 billion investment programme, adding lower-cost geothermal, and flexible thermal generation capacity and New Zealand's first gas storage facility. Contact opened the Wairakei bioreactor, a unique facility that significantly lowers the impact on the Waikato River by removing hydrogen sulphide from cooling fluid from the iconic Wairakei Power Station using bacteria native to the Waikato River. Contact also opened the Ohaaki wetland, a two-year project managed by Fish & Game NZ which has transformed previously unused land impacted by subsidence into a useful natural resource. These two projects represent important steps in the ongoing care for the environment in which Contact operates.

"In the current low demand growth environment we will not be committing to further generation developments in the near term. Contact maintains a range of high quality development options with the world class resource at Tauhara ready for execution as market signals dictate. In the meantime, our focus will be on minimising the costs required to retain the full range of development options we have in place," Mr Barnes said. For more information see here

http://www.contactenergy.co.nz/web/pdf/financial/HY13-Media-Release.pdf

TOPP1 Progress – We understand that the TOPP1 plant is up and running and will report on this in future. Already, it's presence in the market has caused a stir, with some interesting effects on prices received for generation in the vicinity. The Electricity Authority has agreed with Norske Skog Tasman and Mighty River Power that prices for some periods need correcting.

Ngatamariki almost there –Ngatamariki is progressing well and the scheduled commissioning will be complete by mid - year. The \$484 million project, being built in partnership with Tauhara North No 2 Trust, has gone pretty much to schedule. Once Ngatamariki is online MRP will have about 460 MW of geothermal power under operation – with annual output of almost 4,000 GWh – at a total value of \$1.76 billion. It will increase Mighty River's baseload geothermal generation to about 40 % of the company's total production.

MRP steps up in Chile and US based Energy Source - In early February Mighty River Power announced that it had reached an agreement to take direct control of geothermal investments in the United States (EnergySource) and Chile. For more on the MRP article see <u>here</u>.

ARANZ Geo and GNS Science are Rebuilding Christchurch - ARANZ Geo and GNS Science will collaborate on an NZ project like no other – the rebuild of Christchurch post the 2010 and 2011 earthquakes. ARANZ Geo are developers of the 3D geological modelling software that GNS Science will use to develop a geological model of the city. The model, the most comprehensive of its kind in the world, will help in the rebuild of Christchurch. It will be made available to the public in 2013. GNS Science will use Leapfrog (www.leapfrog3d.com) 3D geological modelling solutions.

Geothermal Heat-pump Association of New Zealand (GHANZ)

The Geothermal Heat-pump Association of New Zealand (GHANZ) is an NZGA Special Interest Group working collaboratively across the geothermal heat pump industry in New Zealand.

GHANZ was established under the New Zealand Geothermal Association (NZGA) in 2012.

The <u>August 2012 Newsletter</u> has the following:

- Guide to Geothermal Heat Pumps
- Joint AU/NZ Standard for geothermal (ground-source) heat pumps.
- Geothermal Heat Pump Installers and Installations.

The <u>Dec 2012 Newsletter</u> has the following:

• CHP Guide, Research Projects and Training.

See also the following GHANZ past events:

- <u>Geothermal Heat Pumps -</u> <u>An AU Perspective</u>
- <u>Geothermal Energy</u>
 <u>Workshop</u>
- <u>Geothermal Energy</u>
 <u>Workshop</u>

See the GHANZ web-site for more.



LEAPFROG Developers prepare for

International Growth - ARANZ Geo Ltd, developer of the 3D geological modelling software 'Leapfrog' used by mining, hydrogeology and geothermal industries has announced two new staff as it prepares to upscale its international marketing of the Leapfrog product. More here. For more information on the Leapfrog software suite visit www.leapfrog3d.com.

Award recognises two GNS GeoNet

Projects - The 2012 New Zealand Open Source Software Awards recognised the GeoNet Rapid Project and also the use of open source software in science - for GeoNet's Open Data policy. Geo-Net instrument network records about 20,000 earthquakes in New Zealand each year. GeoNet Rapid provides information online within 3 minutes. The 'open data' policy means that data collected since 2001 is freely available. More <u>here</u>.

Geothermal in Southland? - At a recent event in Southland the Geothermal Heat Pump Association explains that geothermal development doesn't have to be high temperature and even in Southland there are opportunities for clean geothermal heat. More <u>here</u>.

World Bank Geothermal Funding – Any in the pot for NZ? - The World Bank has launched a fund in Reykjavik, Iceland, to raise \$US500 million for developing geothermal energy in developing countries. More <u>here</u>.

Red Stag signals geothermal interest in

Rotorua - Geothermal energy exploitation is the "biggest untapped economic opportunity of our age in Rotorua", according to Red Stag Timber director Marty Verry. Red Stag, New Zealand's largest sawmill, was likely to increase production from 380,000cu m to 600,000cu m in the coming years, meaning an increased demand for steam and electricity - a demand geothermal energy could help fill. More <u>here</u>.

All systems go for Te Mihi for 2013 - Contact Energy has put the first geothermal steam through new turbines at its 166 megawatt Te Mihi geothermal station in January. Te Mihi will be commissioned in mid-2013, a time when market demand is predicted to be flat and wholesale electricity prices low (assuming our hydro lakes refill after the current official drought). Despite this, Te Mihi is likely to displace more expensive fossil-fuel generation from other providers.

NZ geothermal exports to Chile and Indonesia – NZ's geothermal skills are proving to be in increasing demand. GNS Science took a team to Chile in mid-November to run workshops in computer modelling of geothermal fields for the geothermal industry there. More <u>here</u>. Meanwhile Indonesian President is keen to secure NZ skills and expertise to help to grow the country's significant geothermal resource (second only in size to the USA). More <u>here</u> and <u>here</u>.

December 2012 saw the official launch of the Above Ground Geothermal and Allied Technology (AGGAT) industry initiative. AGGAT has grown out of a number of industry research programmes managed by HERA and has strong support from key companies involved in geothermal and allied markets. It is co-funded by industry and through a grant from the Ministry of Business Industry and Employment (MBIE). More details here.

Deloitte Energy Excellence Awards 2013

Our New Zealand geothermal companies have drawn the attention of several outside commentators as 'World Class'.

Let's ensure that your company and projects are well-represented at the upcoming Deloitte Energy Excellence Awards. For details and entry forms see www.energyawards.co.nz.

The Awards evening will be held in Auckland on Wednesday 14 August, 2013.

AGGAT announces a Product Development Opportunity -

Extraction of minerals from geothermal brines. More details are available here.

Contact Nick Inskip to discuss on 09 262 4750.

IEA Geothermal

For more details on resources and 'what's New' see here.

New Publication – March 2013 -Guide to Exploiting Low Temperature Geothermal Resources.

Pure Advantage outlines NZ's Geothermal Advantage

The Pure Advantage report released in November 2012 says of geothermal in New Zealand – 'New Zealand's worldleading geothermal design and build expertise means that a super-charged industry wide export strategy will get us ahead in an international market that's set to be worth \$40b by 2020.' The Pure Advantage Report is available <u>here</u>.

And Greenpeace is Opimistic too...

Greenpeace released "energy [r]evolution – A Sustainable New Zealand Energy Outlook" and the shorter "The Future is Here" reports in February 2013 – The reports had concerns about Government policy and initiatives around climate change but had the following comment in their introduction: '*However, New Zealand is endowed with a wealth of renew-able energy resources with world class expertise in renewable energy technologies, especially in geothermal energy, that could be the foundation of a major export industry. With the right Government support and market framework, N Z businesses could rightly claim a lucrative share of the rapidly expanding global clean energy market.' The Greenpeace short report is available here http://www.greenpeace.org/new-zealand/en/reports/The-Future-is-Here-report/*

International News

Geodynamics completes first open flow test at Habanero 4-Geodynamics completes first open flow test at the Habanero 4 well at its EGS project in Australia, achieving the planned maximum production rate of 35 kg/s before completion of the test. More <u>here</u>.

Icelandic volcanoes could heat British homes - Volcanic heat from Iceland could generate electricity to power British homes within a decade, according to experts. More <u>here</u>.

Geothermal Designs Arise as a Stormproof Resource - Advocates for geothermal energy say that the path of destruction cut by Hurricane Sandy, which unearthed fuel tanks, ravaged cooling towers and battered air-conditioners, has already persuaded some building owners to switch to geothermal systems that use underground pipes to harness the earth's energy for heating and cooling buildings. More <u>here</u>.

NZGA 2013 WEBINARS

NZGA hopes to introduce a series of webinars in 2013. The likely format is a half hour online presentation followed by questions.

If you are interested in making a presentation or would like to suggest a speaker for NZGA to secure please contact the <u>Executive Officer</u>.

Board and Executive Officer Update

- NZGA Treasurer Matters Firstly, Kevin McLoughlin has taken on the role of Treasurer, after Marcel Manders stepped down under the rotation policy. The Board passed a vote of thanks to Marcel and his MB Century team for their efforts in recent years. Kevin reported a healthy bank balance. The Board approved changes that will enable internet banking services (one benefit will be a faster turnaround of receipts for members requiring these) and a change of bank.
- Bylaw Changes The NZGA will be looking at possible bylaw changes, largely focused around the Board election process. With email communications there is little reason for elections to take months. Jane Brotheridge (our new NZGA Secretary) will keep you informed.
 The Board also considered whether there should be greater alignment between the Board and the Interest groups, but for now the Board has recommended maintaining the status quo.
- **Review of Geothermal Regulations and Well Standards** Currently Paul Bixley is leading a small subcommittee reviewing the Geothermal Regulations and related material. The Regulations are half a century old and sections have been untouched despite evolving views on good practice and health and safety (in fact financial penalties in this are still written in pounds!) NZGA has had internal pressure to review related material, but external drivers follow the Pike River inquiry. If you are interested in making yourself available to help with this please contact Paul at Contact.
- NZGA Seminar Juliet Newson and Brian Carey have been working on the NZGA Seminar, which this year has a reservoir modelling theme. This will be held in June at the Wairakei Resort. The Board will also use this time for a second Board meeting and to reconsider strategic direction given changes to the industry.
- Pacific Energy Summit and Showcase 24-26 March, Auckland. The Board would like to draw your attention to this special energy conference organised by NZTE. It will bring Pacific Island projects and potential investors together, while giving companies a chance to showcase expertise to visiting parties. Geothermal energy interests have been represented at the planning stage but few geothermal proposals will be ready for presentation at the Summit. Nevertheless this could be a good opportunity for networking and marketing by our members in the exhibition space. For more information see here http://www.pacificenergysummit2013.com/
- New Zealand Geothermal Workshop The 35th NZ Geothermal Workshop will be incorporated with the 26th International Applied Geochemistry Symposium and will be held in Rotorua from 18-21 November. NZGA will be a Bronze level sponsor. Note that the NZGA AGM will be held on the first day of the Workshop. For details see here <u>http://www.gns.cri.nz/iags/</u>
- World Geothermal Congress 2015 NZGA members remain active on the Organising Committee. Leadership issues have been sorted out with Barry Goldstein (Department for Manufacturing, Innovation, Trade, Resources and Energy, Government of South Australia) as the Chair, while Jim Lawless will continue as Vice Chair (now with some key costs covered by NZGA). The first announcement is out and marketing plans are at an advanced stage. We repeat that this will be a great opportunity for all NZGA members to market to an international audience essentially on a home ground so all companies should be considering sponsorship, exhibitions and preparation of papers. We will have co-ordinated exhibitions under Geothermal New Zealand leadership with more details to come. Initial information can be found here http://wgc2015.com.au/index.php
- **Transmission Pricing Methodology Submission** The Board recognised that a submission should be made on the proposed revision to the Transmission Pricing Methodology with the Electricity Authority was consulting on. Consequently Brian White prepared a submission which raises concerns about the uncertainty created by the proposed new changes and directs these changes away from the generators. For details see <u>here</u>.

NZGA Special Interest Groups - Update

A brief update is set out below – for more details see the NZGA web-site <u>SIG March 2013 Update</u>.

<u>SGGG Update - Structural Geology and Geothermal</u> <u>Geomechanics Community Comes Together at the NZGW</u> - A significant gain was made for the Structural Geology and Geothermal Geomechanics (SGGG) community in November 2012 when the New Zealand Geothermal Workshop hosted three dedicated sessions. This is the first time the NZGW has hosted session specific to structural and geomechanical issues.

NZGA Environment and Legislation Interest Group - This group led the excellent submission on the Northland Regional Policy Statement proposal (see here). Prior to that they provided feedback on a Royal Society paper on "Sustainable Carrying capacity of new Zealand". Since then, Tricia Scott (New Zealand Environmental) has stepped down from the leadership – thank you Tricia for your work in establishing this group and welcome Stephen Daysh (Environmental Management Services) who has now agreed to take over the leadership of this group.

Generation and Industrial Use - We have had a slow start to this Group. In August last year, a small team met in Rotorua to discuss ideas on how this Group could develop, and to identify some activities to get the Group started. We have had a steady building of interest from NZGA members over the past 6 months. The Group was involved in providing the NZGA Executive Officer (Brian White) with some feedback on the proposed Electricity Demand and Generation Scenarios (EDGS). This Group provided a broader collection of the NZGA membership to support Brian in preparing a submission for this document.

The Geothermal Heat-pump Association of New Zealand (GHANZ) – see earlier in this newsletter.

<u>Geothermal Reservoir Modelling Interest Group</u> – A reservoir modelling theme has been chosen as the focus for the NZGA Seminar this year.

<u>Tourism Update</u> – Andy Blair of GNS Science and Enterprise Great Lake Taupo has agreed to take the lead for this group, so watch this space. Welcome Andy!

Interested in getting involved in an NZGA Special Interest Group?

The following Groups need a leader:

- Direct Use
- Iwi and Landowners

NZGA can assist the leader in order to minimise the effort required. In you are interested, contact the <u>Executive Officer</u>. See more on NZGA's Special Interest Groups <u>here</u>.

Possible Fact-Finding Mission to Germany



The New Zealand-German Business Association is looking to put together a fact-finding mission to Germany focused on renewables, and transfer of knowledge.

They would like to discuss ideas with potential delegates. The current concept links the visit to a Renewables Trade Fair in Stuttgart in late September, but the date is flexible.

Currently suggested visits that could be of interest include to a combined heat and power station (nongeothermal), to a company using state-of-the-art geothermal drilling equipment and techniques, to a site using geothermal energy for district heating and cooling (city of Neuweiler), to a research centre for renewables including geothermal, to an organisation focussed on deep geothermal, and to a large stadium using geothermal heat pumps for heating.

Site visits, bus transfers, events and networking functions will be paid for by the German Federal Ministry of Economics and Technology, but you will pay for your own travel and accommodation.

If you are interested and want to discuss these and other ideas then contact Oliver Rube <u>ORube@germantrade.co.nz</u>

NZGA Membership	New Zealand Geothermal Workshop (19-21 November 2012)	
Details	– Report Back	
NZGA Membership stands at 346. See who our Corporate and Institutional Members are <u>here</u> . More details on membership benefits, fees and application forms are available here on the NZGA <u>web-site</u> . NZGA operates 8 Interest Groups – find out how you can get involved <u>here</u> .	 The 34th annual <u>New Zealand Geothermal Workshop</u> held in Auckland 19-21 November 2012 was a great success with over 250 delegates attending. Over the three day conference, 80+ technical presentations were given on topics ranging from geology, engineering, production and management, resources and environmental issues, geophysics, reservoir modelling, drilling and exploration, structural geology & geomechanics, geochemistry and direct use. The best paper awards were presented at the Workshop dinner to: Jacqueline Dohaney of The University of Canterbury for the NZGA award for Current Innovations Ian Johnston of the University of Melbourne for the MB Century award for Engineering Julie Rowland of The University of Auckland for the Hot Rock award for Exploration and Development Jaime Jose Quinao for the Contact Energy award for Reservoir Engineering As with previous years, the Workshop incorporated the New Zealand Geothermal Association AGM and an industry update session. All of the updates have been added to the NZGA website. 	
	See here. <u>http://www.nzgeothermal</u>	l.org.nz/workshop_papers.html
	- GEOTHERMAL TOURISM – s of Interest	NZGA ACTION PLAN
 In this issue of the newsletter we have highlighted a number of available publications and works that focus on the theme of geothermal tourism: Volcano and Geothermal Tourism: Sustainable Geo-resources for Leisure and Recreation, Anita Fernandez-Young – More <u>here</u> Volcano and Geothermal Tourism: Sustainable Geo-Resources for Leisure and Recreation – Erfurt-Cooper, Patricia, More <u>here</u> and <u>here</u>. Geothermal Springs and Tourism – More <u>here</u>. Elderly Tourists Attraction to Geothermal Tourism – More <u>here</u>. Geotourism in Volcanic and Geothermal Environments: Playing with Fire? Patricia Erfurt-Cooper - More <u>here</u>. 		The NZGA Action Plan is a living document that sets out the workplan and activities for the year ahead. As progress is made so the Plan reflects this. Read the latest version of the ACTION PLAN HERE (last updated March 2013.)
NZGA RESOURCES (on the NZGA web-site)		
NZGA Industry Papers (@ Nov 2012)	NZGA Media Statements (@ Aug 2012)	NZ CountryNZGA SubmissionsUpdate 2012(@ Aug 2012)
What's New - For all other 'What's New' – see the NZGA web-site here.		
	S - 2013	EDUCATION/TRAINING - 2013
 New Zealand Geothermal Workshop 2013 - This year, the 35th NZGW will be incorporated with the <u>2013 International Applied</u> <u>Geochemistry Symposium</u> and held in Rotorua 18-21 November 2013. Watch for details <u>here</u>. 		 IESE Short Geothermal Courses 2013 – further details including course titles, dates and booking forms are here on the <u>IESE web-site</u>.
NZGA produces this Newsletter primarily for the benefit of its members and also for the wider public. We are happy for the material in the newsletter to be used but ask that the NZGA Newsletter be acknowledged as the source. We are always keen to promote our members and their project activities – please contact us with your news, vacancies or useful materials.		KEEP IN TOUCH – if your contact details change – let us know here - <u>Executive Officer</u>