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INTRODUCTION BY BRIAN CAREY

Recently I have been privileged to be involved in both the International Energy Agency Geothermal meetings and the French Geothermal Associations Geothermal Conference in Paris. These meetings have facilitated connections in the geothermal heat pump space that will open up new sources of information for us. IEA Geothermal are planning a workshop on Innovative GHP Technology to be held in the last quarter of 2014. I will keep you informed once details are known.

Cooling is getting increased recognition in the geothermal heat pump space with the IEA geothermal heat pump group looking to obtain data on temperate heating and cooling installations for its open database.

Korea has had a significant uptake of Geothermal Heat Pumps over the last five years and we can connect with Yoonho Song who is the Vice Chairman of IEA Geothermal to find out more of what has gone on in Korea. He also is the custodian of some important GHP datasets if we wish to undertake in-depth analysis. The European Union is pushing the uptake of renewable heating and cooling solutions. Currently in the European Union 15.6% of heat and cool is provided by renewables with geothermal heat pumps featuring strongly in this mix. Some nations are well ahead of others and in Sweden for instance 85% of new buildings are now being heated by geothermal energy.

The sense I get is that there are number of nations that are really pushing forward with the uptake of GHP technology as a key part of their renewable energy heating and cooling strategies. It is interesting to see this spreading to more temperate climates.

And so what is it that I can be doing to assist NZ embrace this technology ? Read on - in this newsletter is an article by Simon Bendall on the GHANZ strategic action plan

STRATEGIC PLAN

In our last GHANZ membership meeting a small team was formed to put together a draft strategic action plan for GHANZ. Included in the team were Zeb Etheridge, Tania Hood, Brian Carey, Rick Smith, John Walker and Simon Bendall. A big thank you to the team for their contribution. A draft plan has been prepared and is ready for review and discussion by the wider membership. The suggested purpose and vision are copied below:

PURPOSE

The Strategic Action Plan sets out a programme for 2014-2019 to ensure GHANZ activities occur in a planned and strategic way; are aligned with an overall vision; and are financially sustainable and supported by members.

VISION

Geothermal heat pumps are the first choice energy solution for homes, businesses and institutions in New Zealand.

The draft plan prioritises actions under four key areas:

- Organisational Strength;
- Engagement and Awareness;
- Capability building and training; and
- Market growth.

The draft plan is attached to this newsletter. It is deliberately concise and task orientated for ease of use and application. This plan will define the future direction of GHANZ and you are encouraged to review and provide comment. Any questions, comments or suggestions are welcome by email to simon.bendall@emslimited.co.nz.

We will discuss the draft plan and seek to adopt an agreed version in the next GHANZ meeting (meeting details provided on page 2 of this newsletter).



INTRODUCING – HUW WILLIAMS (GEOSCIENCE CONSULTING)

GHANZ is pleased to welcome Huw Williams (Auckland-based senior hydrogeologist) to its membership who has brought Geoscience Consulting as the first corporate member of GHANZ. Geoscience Consulting also includes Greg Martin who is based in Christchurch. Huw, originally from England, and both his former and current colleagues bring to the group a wealth of GHP experience and contacts from the northern hemisphere and Australia. These include developers of the GLD closed loop design software and its Canadian Certified Geo-exchange Design partners, GEOptimize.

In Huw's words...“Awareness of GHP technology is building in many parts of the world and I believe now, at the early stages of the market here in NZ, is the right time to be impressing the importance of accredited designers and experienced practitioners in this specialised market.”
“Sustainability is key to the success of GHP systems. Having been through this teething period in the UK back in the mid-1990s, I recognise the biggest threat to the successful uptake of GHP technology is failing systems. This can result from poor design, poor installation or hydraulically or thermally unsustainable systems over the design life of the system. The easiest way to ensure sustainability is by having your GHP system designed and installed by experienced professionals. This also ensures the system will operate as efficiently as possible, maximising financial gain.”

“Geoscience is looking to positively influence the whole GHP industry, (not just its own projects) by fostering the wider uptake of GHP technology.”

Welcome Huw, Greg and the Team.

NEXT MEETING

The next GHANZ meeting will be held by teleconference and is proposed for **Wednesday 14 May, 8.30am**. We need a good turnout, in particular to discuss and confirm the GHANZ Strategic Action Plan. Please confirm your availability by email to Rick Smith (rixmith@xtra.co.nz)

If we need to reschedule this timeslot to suit the majority of members we will do so and advise by email. Dial in details for the teleconference will be circulated by email shortly before the meeting.

EECA NEWS – CHRISTCHURCH DISTRICT ENERGY SYSTEM

EECA Chief Executive Mike Underhill welcomed the announcement of the alliance that will work to deliver a District Energy System in central Christchurch. The District Energy System will supply networked heating and cooling to buildings via below-ground pipes.


A press release can be viewed here:
<https://www.eeca.govt.nz/news/eeca-welcomes-christchurch-district-energy-alliance>

PUBLICATIONS

We aim to get the finalised “Introductory Guide to Geothermal Heat Pumps in New Zealand” out this month. We apologise for the delay and are as eager to get it out there as you are! It will soon be available on the GHANZ website, as well as the GNS Science and EECA websites. An email will come out announcing the release.

A couple of articles are also being published in IPENZ magazines. The paper is titled “The rise and rise of geothermal heat pumps in New Zealand” originally presented at the 2012 NZ Geothermal Workshop has been reprinted in the IPENZ Transactions (Issue 41). A second article will appear in the upcoming May/June issue of IPENZ’s bi-monthly Engineering Insight magazine. See: <http://www.ipenz.org.nz/ipenz/publications/?g=2&CatID=31>

LAUNCH: IGSHPA – AUSTRALASIA



The Geothermal Heat Pump / Ground Source Heat Pump (GSHP) industry in Australia and New Zealand has received a great boost with the establishment of our own Chapter of the International Ground Source Heat Pump Association (IGSHPA).

Geothermal Heat Pumps are an internationally and locally proven energy efficiency technology associated with heating, cooling and hot water. They can be applied in both residential and commercial buildings as well as applications such as swimming pools, greenhouses and industrial applications.

Known as IGSHPA – Australasia, the chapter will provide members across Australia and New Zealand with services and support that have been traditionally provided from the IGSHPA office in Oklahoma, USA. These include research, training and the development of design and installation guidelines.

The establishment of IGSHPA – Australasia provides a local voice for an industry that is experiencing growth and has a significant role to play in the transition towards a more energy efficient future.

The purpose of IGSHPA - Australasia is to advance economic, social and community awareness, through development of knowledge and increased education across the GSHP industry by:

1. Promoting the environmentally efficient use of ground source heat pumps;
2. Developing and promoting sound industry-related standards;
3. Encouraging the effective marketing of ground source heat pumps;
4. Providing a forum for information interchange;
5. Identifying and supporting sanctioned affiliate institutions for the purpose of IGSHPA training and industry research;
6. Developing and distributing internationally recognized training materials;
7. Enabling members to have direct input into any published materials;
8. Enabling association members to benefit from the advantage of large numbers; and
9. Representing the association in matters of local, state, national, and international interest of members.

The founding committee is as follows:

President: Yale Carden (GeoExchange Australia, North Sydney, NSW)

Secretary: Professor Ian Johnston (University of Melbourne, Melbourne, VIC)

Treasurer: Dr Mirek Piechowski (Energy Action, Parramatta, NSW)

Founding Officers:

Officer: Lyall Smith (Central Heating NZ, Christchurch, NZ)

Officer: Simon Bendall (Environmental Management Services, Napier NZ)

Officer: Colin Hayes (Perth Environmental Plumbing, Perth WA)

Officer: Peter Buck (Geoexchange Technologies, Perth, WA)

What is IGSHPA?

The International Ground Source Heat Pump Association (IGSHPA) is a non-profit, member-driven organization established in 1987 to advance ground source heat pump (GSHP) technology on local, state, national and international levels. Headquartered on the campus of Oklahoma State University in Stillwater, Oklahoma, IGSHPA utilizes state-of-the-art facilities for conducting GSHP system installation training and geothermal research. With its access to the most current advancements in the geothermal industry, IGSHPA is the ideal bridge between the latest technology and the people who benefit from these developments.

Mission

The mission of International Ground Source Heat Pump Association (IGSHPA) and its membership is to promote the use of ground source heat pump technology worldwide through education and communication.



NEWS FROM ABROAD – UNIVERSITY OF MELBOURNE

A Unique Full-Scale Experiment with Shallow Geothermal Energy



The Elizabeth Blackburn School of Sciences

The Geothermal Group of the Department of Infrastructure Engineering at the University of Melbourne has recently completed the installation of a unique shallow geothermal energy experiment on the University Campus in Parkville

The new Elizabeth Blackburn School of Sciences building, a two storey building of around 1,500 m² floor area located adjacent to the Bio21 Institute in Flemington Road and to be used in conjunction with University High School, has been fitted with a 120 kW shallow geothermal system. The underground part of the system features twenty-eight 50-metre deep borehole double loop ground heat exchangers to be used as heat extractors/injectors. Sustainable geothermal energy will be collected by the ground heat exchangers and transferred via four ground source heat pumps to the building to fulfil around 75% of its heating and cooling requirements.

The system, especially its underground part, is heavily instrumented with around 250 temperature sensors and other monitoring equipment to study its performance. This will allow a detailed study of the performance of a commercial-scale geothermal system under Victorian climate and geological conditions. When considering the amount of monitoring instruments installed, this project is one of the biggest experimental projects for such a study in Australia and, indeed, worldwide.

Live updates about the system's performance will be broadcasted to the information screen installed in the school's main hall. This information will be used to educate high school students and the general public about green geothermal energy technology.

The system will be monitored for a few years. The analysis of the experimental data will be used to advance Australian design guidelines for ground heat exchangers and promote shallow geothermal technology as a renewable alternative

to traditional heating and air-conditioning systems.

This project is a part of the \$3.8 million shallow geothermal energy research and demonstration project undertaken by the Department and funded by the Victorian Government through the Department of State Development, Business and Innovation (DSDBI).

The Geothermal Group has worked with the University's Property and Campus Services Department on this project in conjunction with Geotech Pty Ltd who undertook the in-ground installations. PhD students Olga Mikhaylova and Amir Valizadeh Kivi, and research assistant Riyan Aditya have made significant contributions to this project. The project is being undertaken under the direction of Professor Ian Johnston and Dr Guillermo Narsilio

More detailed information about shallow geothermal technology and other geothermal research projects can be found on the Geothermal Group's website: www.eddge.com.au.



Enclosure for heat pumps, control & distribution system & buffer tanks



Installing a 50 metre deep ground loop



Grouting a ground loop in a borehole