

IN THIS ISSUE

WELCOME

GEOTHERMAL ENERGY IN SWITZERLAND

THERMAL STORAGE USING WELL FIELDS

CASE STUDIES NEEDED

COLLINS PLUMBING AND GAS

THANKS AND HAPPY CHRISTMAS

WELCOME

Welcome to the December 2015 Issue 10 newsletter from the Geothermal Heat Pump Association of New Zealand.

We now have the agreed position of the 195 nations that have recently attended COP21 in Paris. The intention is clear to limit warming the earth's atmosphere to much less than 2°C with a clear preference to strive for 1.5 °C. And what will geothermal heat pump technology do to support the further decarbonisation of energy use. All alternative renewable energy technology will have a bigger part to play – how do we position geothermal heat pump technology to support New Zealand's lower carbon intentions ?

In October I was fortunate to be able to attend a joint seminar run by the International Energy Agency Geothermal Group and the European ERANET Geothermal Group in Geneva. The seminar was primarily focused on European endeavour and I have written an article in this newsletter giving some insights into a renewable heat approach being developed in Zurich.

We are always open to contributions for the newsletter and I want to thank Collins Plumbing and Gas for providing some material on their recent activities for this newsletter.

Enjoy the read – Brian Carey

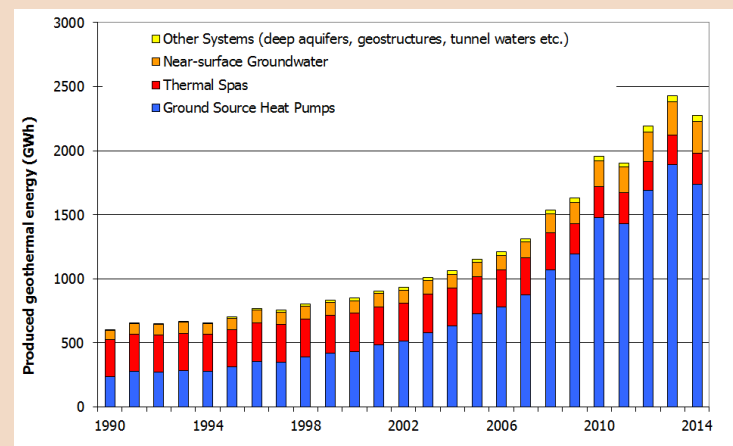
GEOTHERMAL ENERGY IN SWITZERLAND

Currently renewable energy contributes 21% to Swiss energy demand.

Switzerland is using about 2200 GWh of geothermal (Thermal) energy and is very committed to increasing the uptake of renewable energy.

The Federal Government has mandated geothermal energy is in the national interest and have introduced measures to accelerate planning and permitting. They support direct use geothermal with a CHF 30 million per annum support scheme using funds from a CO₂-levy on oil heating.

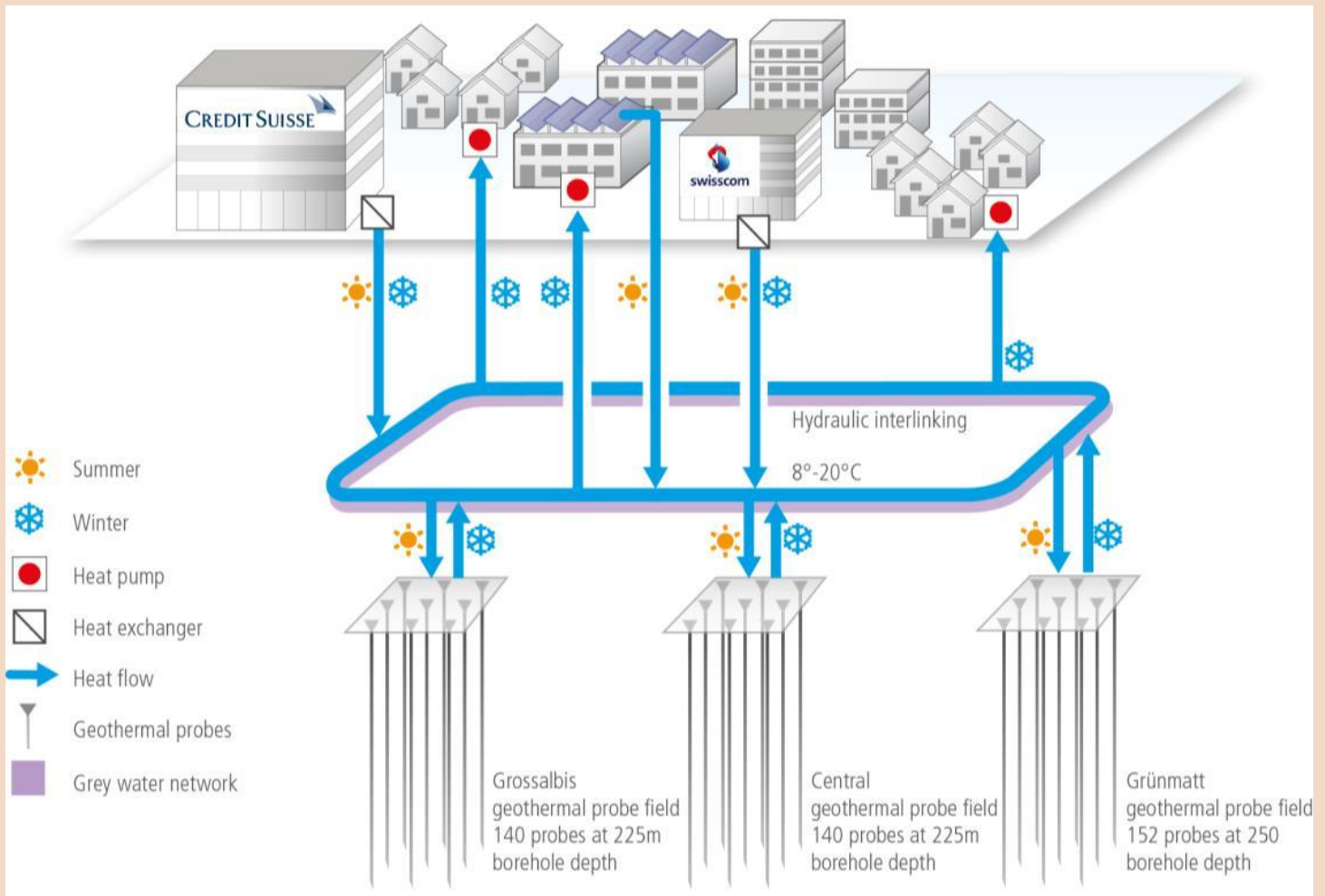
The figure below plots the annual use of various forms of geothermal energy in Switzerland.



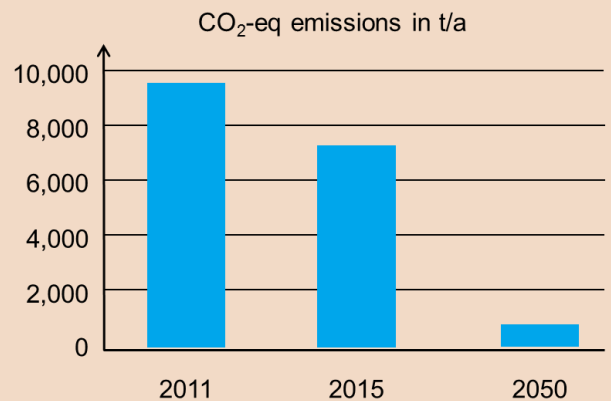
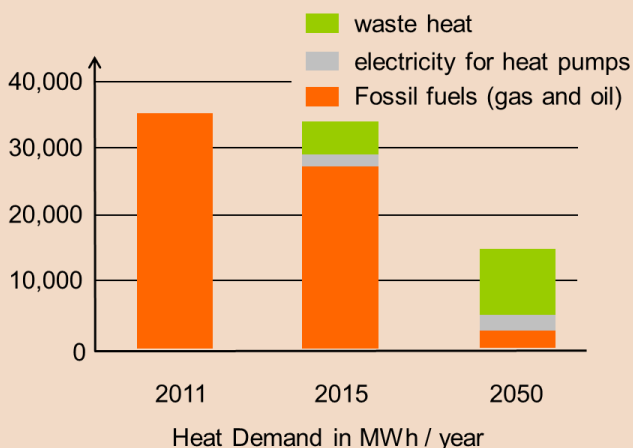
The blue bars show the geothermal heat pumps supplying about 1700 GWh per annum with a doubling in about the last seven years.

THERMAL STORAGE USING WELL FIELDS

There are also some terrific low temperature energy storage systems being developed in Switzerland. There are several large networks being developed in Zurich that have long term development plans out to 2050 that achieve massive reductions in energy input thanks to underground seasonal storage, recycling heat, heat pumps and attain significant reductions in the use of fossil fuels and the associated reduction in CO₂ emissions.



The figure below shows the changing fuel mix, the effect of introducing heat pumps into the system, transferring heat from facility to facility (recycling waste heat) and the predicted influence of the seasonal storage when it is implemented before 2050.



The CO₂ equivalent savings are shown in the figure on the right hand side with the blue bars.

Amstein and Walther are involved in these endeavours.

In GHANZ Newsletter issue 7 there was material referenced from the International Energy Agency group that has worked on energy conservation and energy storage (ECES) including ground

energy storage. If this article on the Zurich low temperature energy storage systems captures your imagination then visit the IEA archive to find more resources on energy storage :

<http://www.iea-eces.org/annexes/completed-annexes.html>

CASE STUDIES NEEDED

GNS Science is looking for more geothermal heat pump cases studies that showcase recent NZ installations.

If you have installations that you think might be worth featuring please email details of the installation and the contact details of the owner to info@ghanz.org.nz so we can talk with them.

COLLINS PLUMBING AND GAS

We are looking to periodically publish short profiles of companies associated with GHANZ in the newsletters.

Collins Plumbing and Gas have been involved with GHANZ since its inception and the information in this profile was supplied by Jill Ansell-Douglas and edited by Brian Carey. Thank you Jill for the information provided.

Collins Plumbing and Gas are based in Auckland with expertise that spans plumbing, drain laying, gas fitting and particularly in the GHANZ context heating systems. Their Web address is :

<http://www.collinsplumbing.co.nz/>



Simon Collins and Manfred Dirr at work !

Manfred Dirr holds German Master Heating Engineer accreditation providing geothermal heat pump expertise in the Collins team.

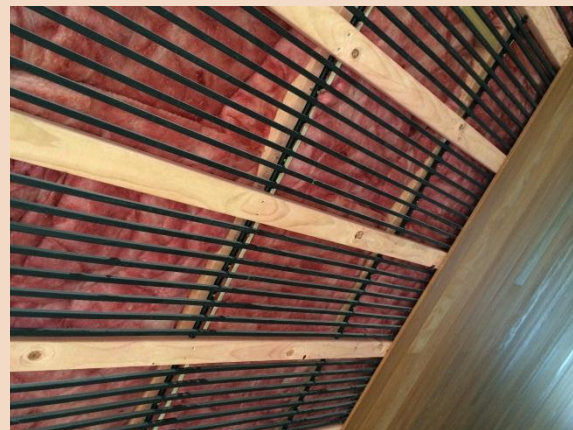
Material from Collins most recent geothermal heat pump design that is now being installed was not available in time to make the newsletter. That will have to wait for into next year or as a case study.

A recent example of one of Collins hydronic heat pump installations is shown below it is an Auckland residential design with heating, cooling, and hot water for an 800 square metre home with a peak heat demand of 26 kilowatt.

Aquatherm black climasystem pipework was installed in the walls and ceiling of the home

http://www.aquatherm.co.nz/products/aquatherm_black_system.cfm

Two photos of the system are shown below.



Aquatherm in wall / ceiling hydronic panels.



Bosch equipment graces the plant room

Thanks Jill for the contribution.

THANKS AND HAPPY CHRISTMAS

2015 is drawing rapidly to a close.

I want to thank Rick Smith for continuing to keep us connected through the year with his every so often emails – thanks Rick

And GHANZ in 2016 – I look forward to more seminars. The Christchurch one in the middle of 2015 was great. Come on Auckland lets see what can happen up your way in 2016. And what about training ?

I would like to take this opportunity to wish you a safe and happy Christmas.

Brian Carey

Chair

GHANZ

15 December 2015.

