

GEO DH PROJECT - FRENCH TRAINING COURSE REPORT

Date: 15th of October

Place: Ile-de-France – Chevilly-Larue

Number of participants: 21

Notes: The training course is hosted by a geothermal district heating operator, SEMHACH. This is a member of the AFGP who has been developing geothermal energy for more than 30 years.

Each participant gets a participant file with the:

- List of the participants (name, surname, companies and location)
- Agenda of the training course
- GeoDH manual
- All PPTS presentations

Summary of the workshop

Our workshop was organized in three main parts of conferences and a visit of the SEMHACH geothermal heating station:

- 1) Geothermal energy
- 2) District heating
- 3) Project management

Speakers are DH operators, design offices, geological state agency.

Participants are professionals of the geothermal sector or representatives of local authorities.

Participation was very active and participants didn't hesitate to intervene during the Q/A sessions. The thematic of social acceptance lead to many comments and questions. This subject appeared to be central in the good implementation of a GeoDH project.

Presentation of the SEMHACH district heating

A constant development...

More than 28 000 housing units are connected to the SEMHACH district heating, located in the cities of Chevilly-Larue, l'Haÿ-les-Roses and Villejuif. There are also many public equipment connected: schools, high school, health body, town hall, library, swimming pool, cultural center... Today this is the most important French district heating. In addition to its environmental performances, its highly competitive tariff ensures the promotion of the DH and every year new connection demands are registered. As a result, the DH is growing since the beginning. To support this development, a third geothermal central is being built and will be put into operation in Villejuif in 2015.

As it is technically and economically impossible to cover all the energy uses of the DH with only geothermal energy, the geothermal centrals are supported in winter by cogeneration centrals (gas turbines) and by supplemental gas heating plant. This is the energetic mix developed by SEMHACH.

Conclusions:

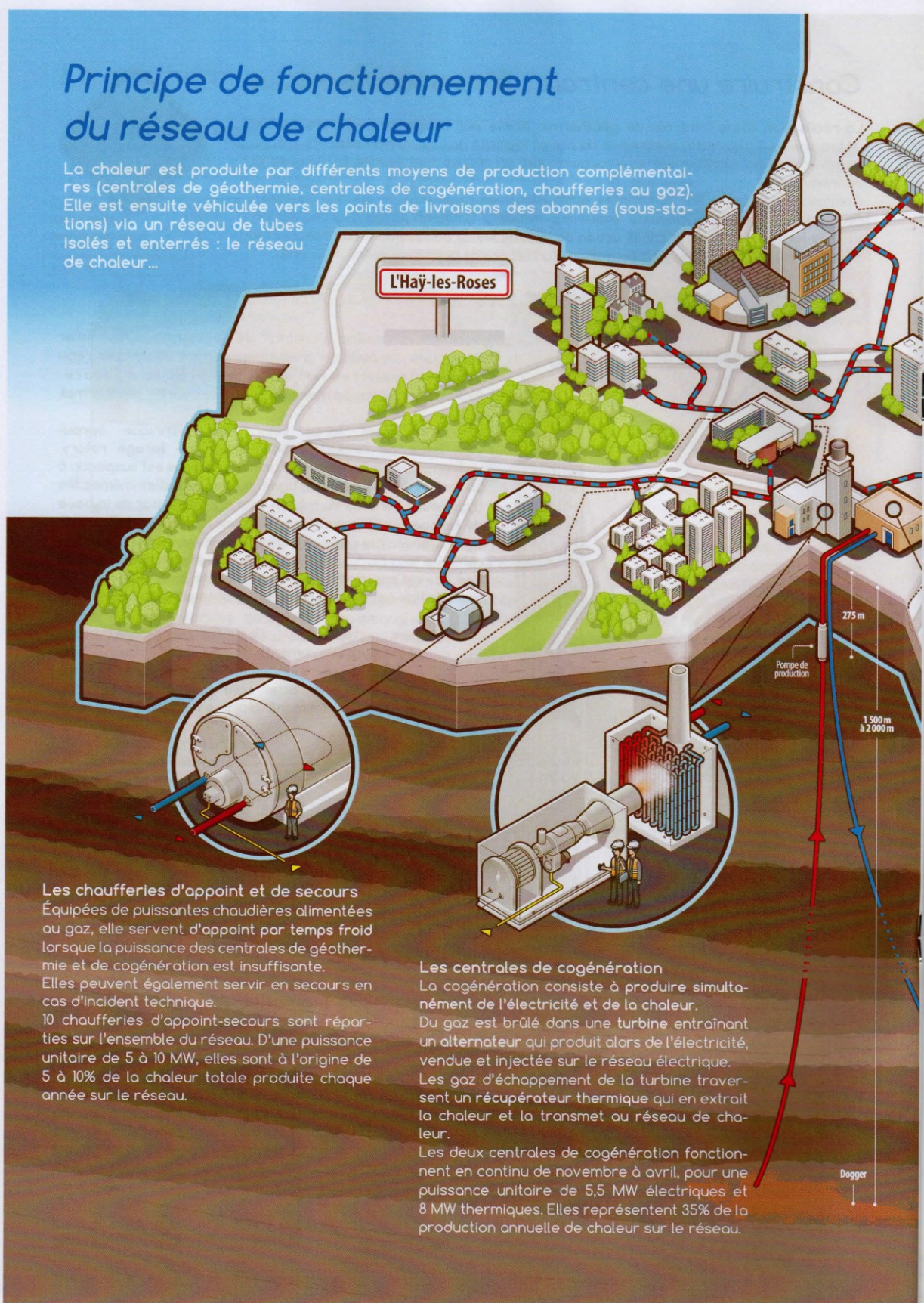
The participants were satisfied of the quality of the training course and the information received. They specially appreciated the presence of experts (Professionals members of AFPG) who have prepared qualitative training supports (PPTS) and have answered participants' questions in details. Some of the participants asked to reproduce this type of event in other regions of France. All the participants will be contact regularly by AFPG and informed about the development of GeoDH.

As an example, a Swiss participant to the course put into relation the AFPG with the Geneva Canton in order to try to build a new geothermal doublet in Geneva. The organization of such event appears to be more successful when the meeting room is located directly on a geothermal site in operation. The possibility offered to visit in real time the installation (well head, exchanger, piping, co-generation electricity turbine, etc.) has been very much appreciated by the participants.

Country Venue, Date	Organiser/s	Attendees' number	Wksp's materials put on website	Comments, Summary	Actions planned by the participants as results of the Wksp
FRANCE Chevilly-Larue Wednesday 15th of October 2014	AFPG and SEMhach, French geothermal district heating operator	21	All speakers presentations have been put on AFPG's website (member corner) Each participant received GeoDH training material and general documentation (financial fact sheet,...)	Our workshop was organized in three main parts of conferences and a visit of the SEMhach geothermal heating station: 1) Geothermal energy 2) District heating 3) Project management Speakers are DH operators, design offices, geological state agency. Participants are professionals of the geothermal sector or representatives of local authorities. Participation was very active and participants didn't hesitate to intervene during the Q/A sessions. The thematic of social acceptance lead to many comments and questions. This subject appeared to be central in the good implementation of a GeoDH project.	AFPG and its partners have decided to carry on GeoDH actions in organizing next year a similar training course. The possibility of visiting a GeoDH operation is really valuable. The problematic of social acceptance has appeared to be a key point during the discussions. AFPG is thinking about having actions in 2015 to improve users perceptions on geothermal energy.

Principe de fonctionnement du réseau de chaleur

La chaleur est produite par différents moyens de production complémentaires (centrales de géothermie, centrales de cogénération, chaufferies au gaz). Elle est ensuite véhiculée vers les points de livraisons des abonnés (sous-stations) via un réseau de tubes isolés et enterrés : le réseau de chaleur...



Les chaufferies d'appoint et de secours

Équipées de puissantes chaudières alimentées au gaz, elle servent d'appoint par temps froid lorsque la puissance des centrales de géothermie et de cogénération est insuffisante.

Elles peuvent également servir en secours en cas d'incident technique.

10 chaufferies d'appoint-secours sont réparties sur l'ensemble du réseau. D'une puissance unitaire de 5 à 10 MW, elles sont à l'origine de 5 à 10% de la chaleur totale produite chaque année sur le réseau.

Les centrales de cogénération

La cogénération consiste à produire simultanément de l'électricité et de la chaleur.

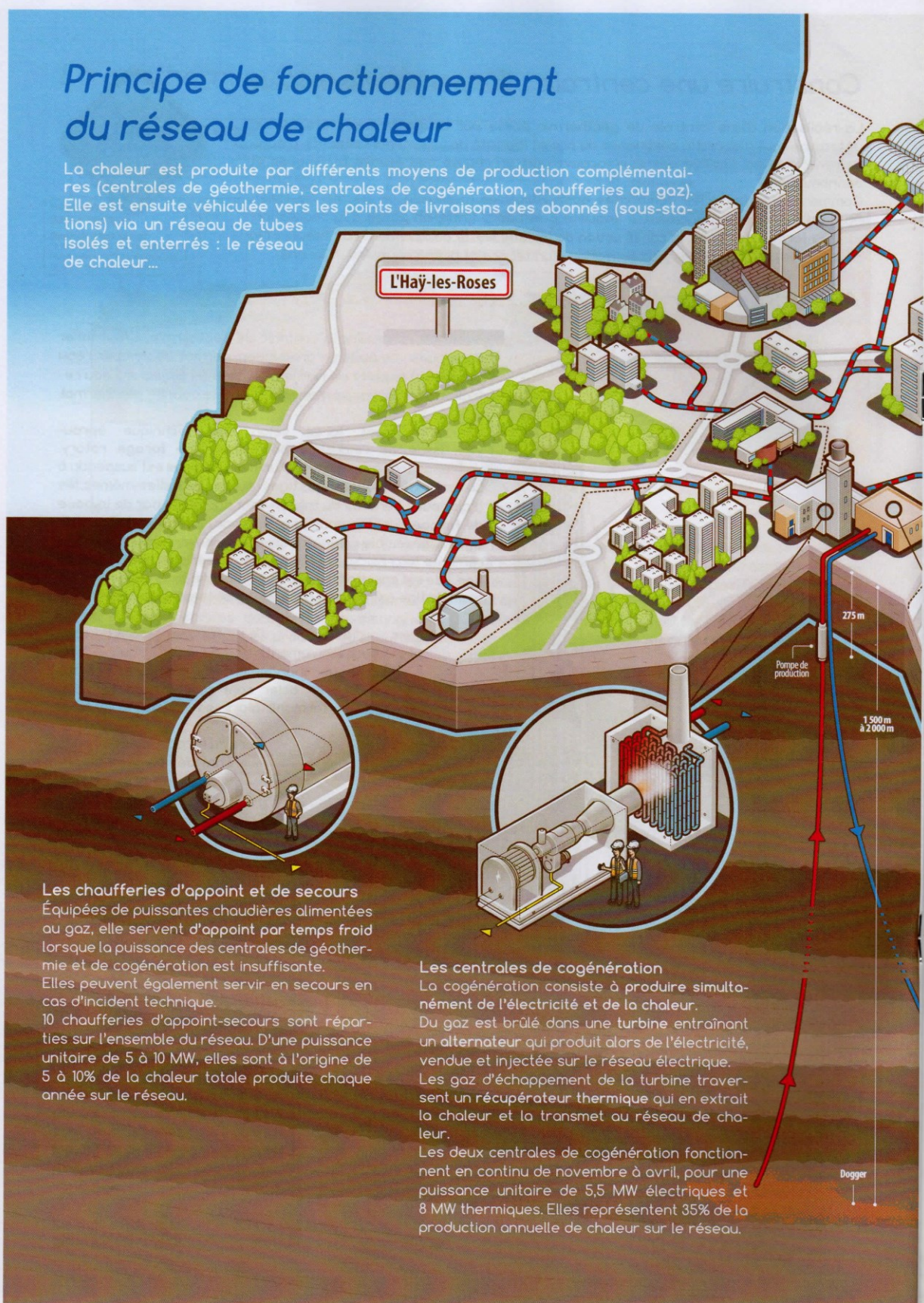
Du gaz est brûlé dans une turbine entraînant un alternateur qui produit alors de l'électricité, vendue et injectée sur le réseau électrique.

Les gaz d'échappement de la turbine traversent un récupérateur thermique qui en extrait la chaleur et la transmet au réseau de chaleur.

Les deux centrales de cogénération fonctionnent en continu de novembre à avril, pour une puissance unitaire de 5,5 MW électriques et 8 MW thermiques. Elles représentent 35% de la production annuelle de chaleur sur le réseau.

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Co-funded by the Intelligent Energy Europe
Programme of the European Union



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GeoDH Project to promote geothermal district heating

Mercredi 15 October, Semhach

Agenda

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Welcoming of the participants 8h30-9h00

1st Part: Geothermal energy 9h00-10h30

- General presentation Christian Boissavy (AFPG)
- Geothermal applications in Europe Christian Boissavy (AFPG)
- Project phases and operation design Miklos Antics (GPCP)
- Drilling technologies, operation and management Miklos ANTICS (GPCP)

Discussions with participants 10h30-11h00

VISIT of SEMHACH district heating and heating station 11h00-12h30

Lunch 12h30-14h00

2nd part: District heating 14h00-15h00

- DH design and key technical parameters (Existing DH or renovation, sources mix to respond to consumers needs...) Pierre IGNON (SERMET)
- Urban district heating (Transmission district, temperatures levels...) Jean-Marc Bertrand (DALKIA)
- Geothermal DH design (Heat exchangers, heat pump, district planning...) Michel Andres (SEMACH)

Discussions with participants 15h00-15h30

3rd part: Non-technical issues 15h30-17h00

- Regulations: legislation and regulations, standards, codes Florence Audin (BRGM)
- Environmental issues and social acceptance Virginie Schmidlé-Bloch (AFPG)
- Risk insurance Olivier Racle (COFELY Réseaux)
- Financing costs, investment analysis Olivier Racle (COFELY Réseaux)

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Discussions with participants Training closure 17h00-17h30

Version du 28/07/14