

DÉVELOPPEMENT DURABLE

INNOVATION

GÉOTHERMIE

Decarbonising cities with
geothermal district heating

CROWDFUNDING INNOVATION

GEORISK 2019 DECEMBER 13



DÉLÉGATION DE SERVICE PUBLIC

Réalisation & Exploitation d'un réseau de chaleur géothermique

Communes de Champs s/Marne & Noisiel



GéoMarne



GéoMarne :

- A territorial project towards zero carbon transition :

District heating supplied by more than 82% geothermal energy, to supply 10 000 households on the territories of communes de Champs-sur-Marne et Noisiel.

- Delegation contract (DSP)

CAPVM (Communauté d'Agglomération Paris-Vallée de la Marne)

- GéoMarne (subsidiary Engie Réseaux)
- Contract duration : 25 years (2019 - 2044)

GéoMarne, some figures...



**GÉOTHERMIE
PROFONDE,**
forage : - 1 900 mètres



**10 000
ÉQUIVALENTS
LOGEMENTS**
desservis sur les communes de
Champs-sur-Marne et Noisiel
(Communauté d'agglomération de Paris Vallée de la Marne)



**40 M€
D'INVESTISSEMENTS**



**19 KM
DE RÉSEAU**



82%
D'ÉNERGIE
renouvelable



TARIFICATION
compétitive et stable

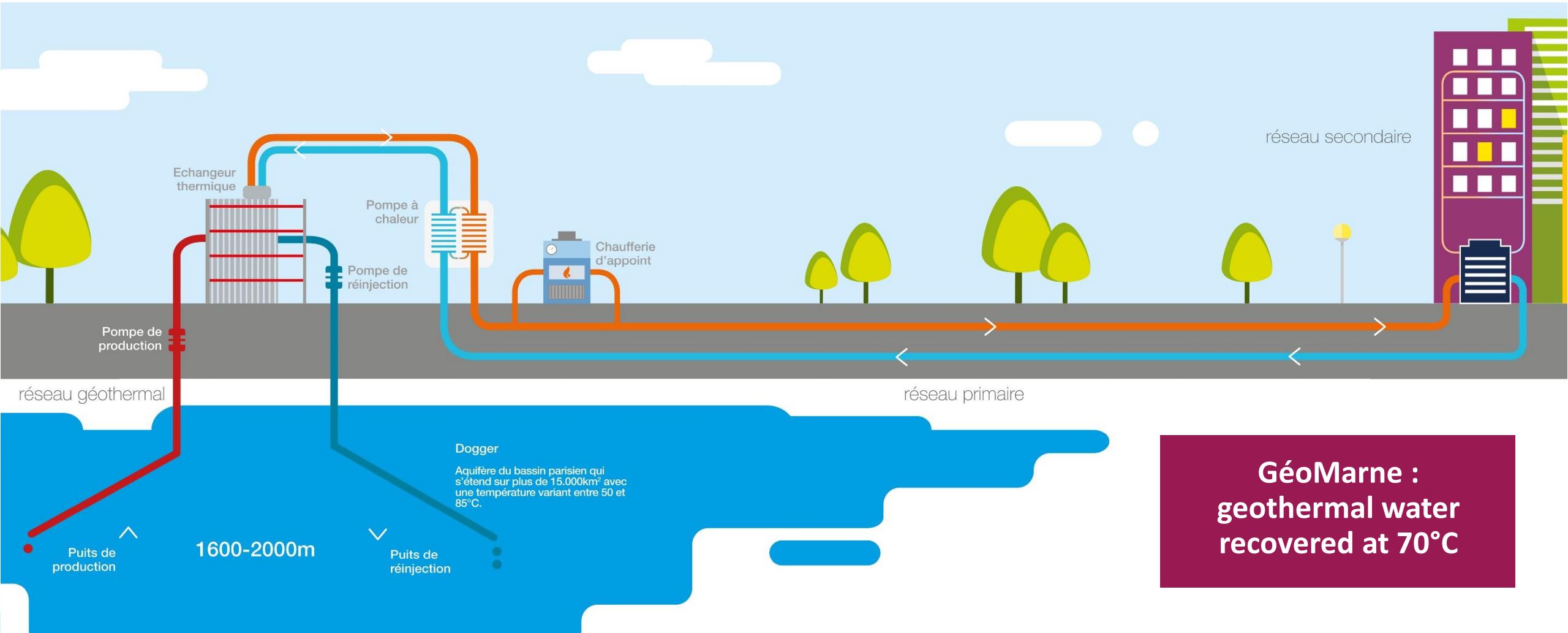


IMPACT ENVIRONNEMENTAL
- 25 000 TCO₂/AN
(équivalence : émissions
évitées de 17 000 véhicules /an)



FINANCEMENT
participatif encouragé

Geothermal district heating



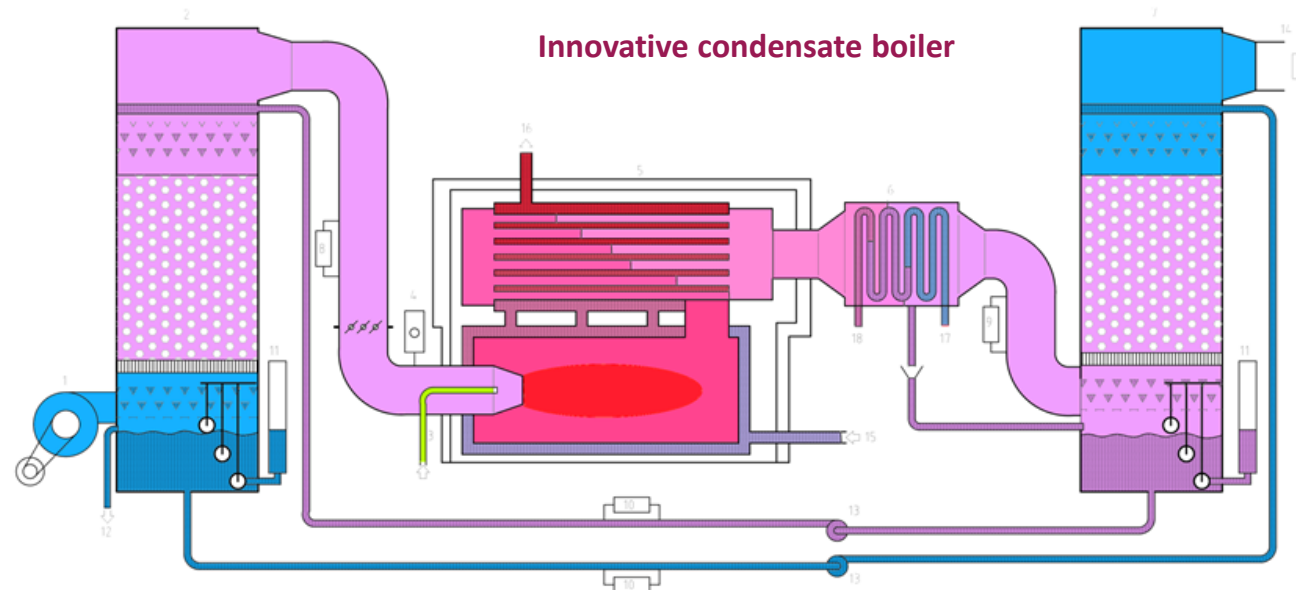
GéoMarne :
geothermal water
recovered at 70°C

Production equipment

- Geothermals wells doublet
 - Wells heights : 1 900 meters –Dogger layer
 - Flowrate 350 m³/h - Temperature 70°C
- 6 MW heat pumps
- 1 gas boilers 29 MW
- Env. 13 MW gas back-up boilers



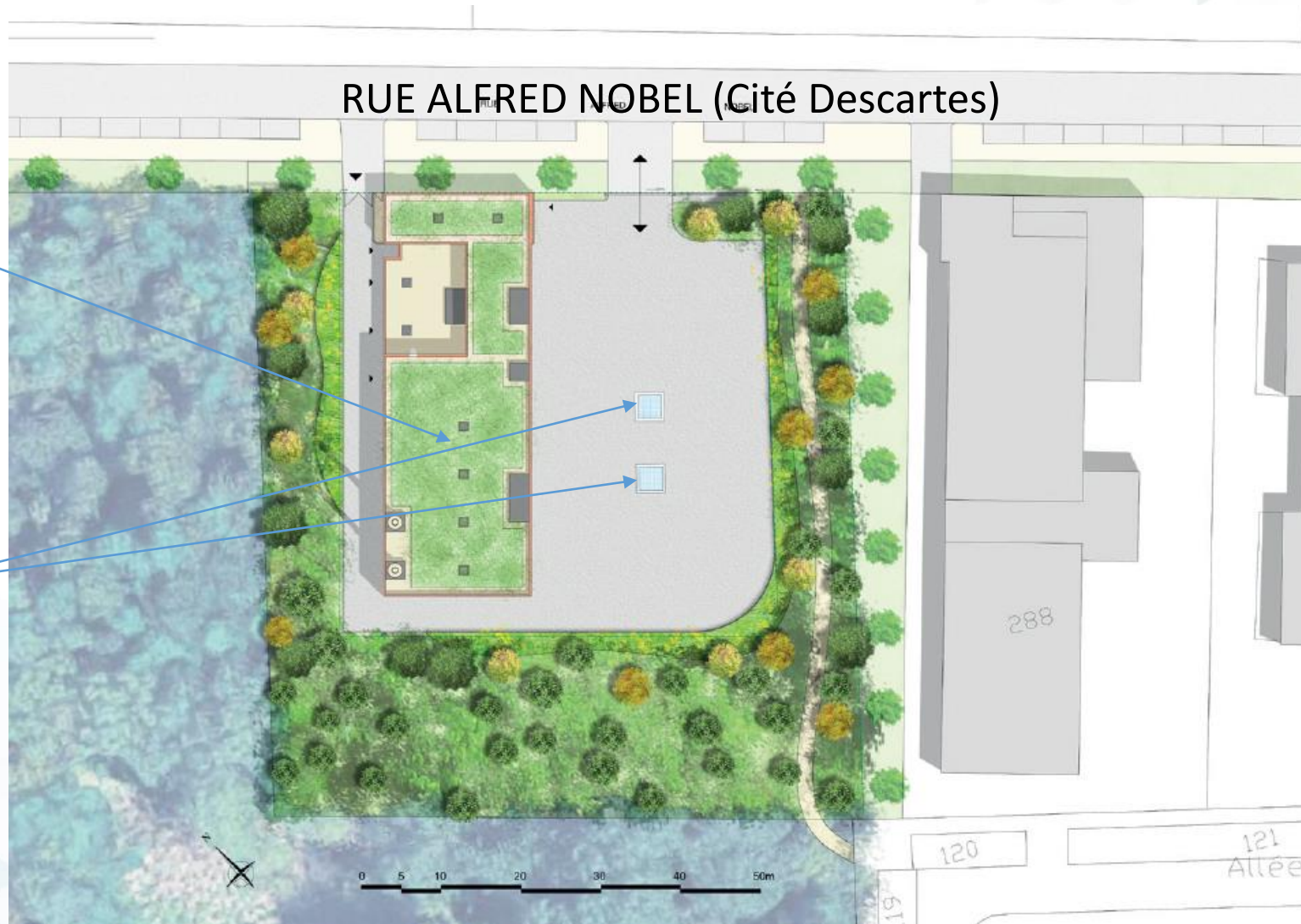
Heat pumps



Geothermal plant layout

Geothermal plant
(vegetalized roof)

Geothermal
wells



Phases - construction work (1/2)



Construction work (28th October 2019)

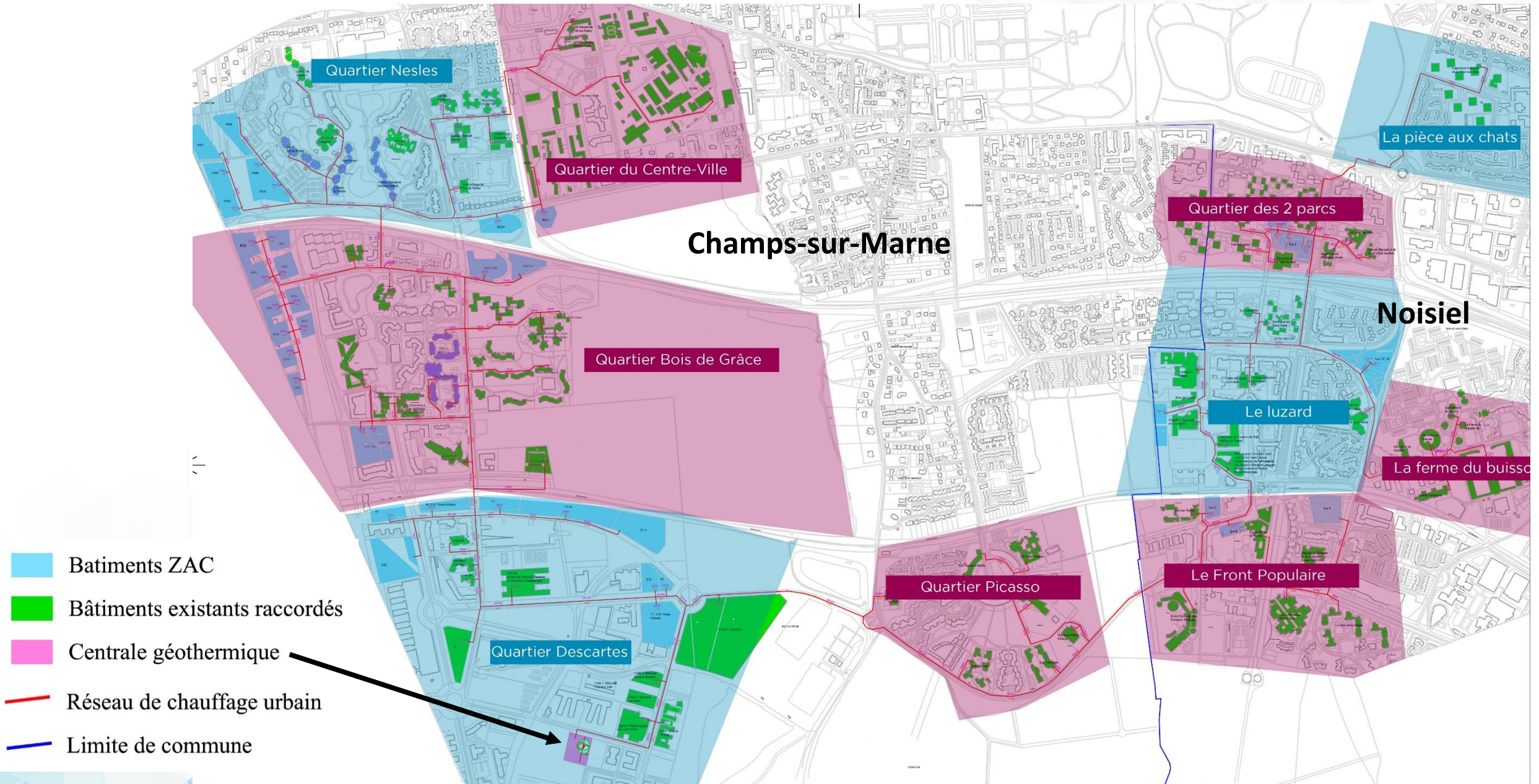
- Platform preparation
- Mi-novembre 2019 / Mars 2020 : géothermal drilling work

Phases - construction work (2/2)

- Geothermal Plant :
 - May 2020 / December 2020 : plant construction
 - October 2020 : Plant equipment implementation
- Printemps 2020 / septembre 2021 : distribution network
- September 2021 : District heating commissioning



District heating GéoMarne



Communication and public opening

Internet site dedicated to GéoMarne project :

<http://geomarne.reseau-chaaleur.fr/>

GéoMarne



Do you want to visit the drilling work ?



GéoMarne, Crowdfunding

➤ Crowdfunding participation ENGIE experience with Renewable projects like Photovoltaic / wind

➤ Stakeholder management

Crowdfunding a solution for project acceptability

Positive externalities

Communication

Label FPCV (crowdfunding for green growth)

➤ Citizens financial participation

4% of the CAPEX

Lumo partner

<https://www.lumo-france.com/projets/geothermie-de-la-marne#informations>

GéoMarne, Crowdfunding

➤ Process

GéoMarne Crowdfunding conditions with LUMO :

- € 500,000 up to 1 M€ in single bonds, Duration of the bond issue: 3 years

Remuneration:

- 6% for the inhabitants of the Urban Community of Paris-Valley of the Marne
- 5% for the inhabitants of the Region Ile-de-France

➤ Participation is reserved to inhabitants of the Territory « Paris-Vallée de la Marne » and Paris suburbs :

- Open 1st December 2019 to inhabitants of Champs-sur-Marne and Noisiel
- Open 1st January 2020 to inhabitants of Territory « Agglomération Paris-Vallée de la Marne »
- Open 1st February 2020 to inhabitants Paris suburbs « Ile de France »