A CROSS-BORDER PROJECT :

RECOVERY OF WASTE HEAT FROM THE "BADISCHE STAHLWERKE" STEEL PLANT IN KEHL (GERMANY)

CELSIUS SUMMIT 2021

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A renewable energy mix to be developed

An Energy Master Plan adopted in 2019, which programmes the development of local resources :

- Deep geothermal energy
- Biomass
- Photovoltaic and thermal solar
- Recovered heat

- **One important potential identified, the BSW steel mill:**
  - 134 GWh/year recoverable from flue gas;
  - Additional potential that can be mobilised through additional investments;
  - Close to the Strasbourg heating networks, which can absorb 80 GWh/year of heat from the outset, and development potential (cold production, new neighbourhoods served, etc.);
  - Possibility of supplying the Kehl (Germany) heating network along the route;
  - Possible synergies to be developed with other industries

- **A project in line with the 100% RE trajectory in 2050:**
  - Increasing the renewable energy mix
  - Increased energy supply
  - Reduction of atmospheric pollution
  - Long-term price control

An ambition for massive deployment of heating networks

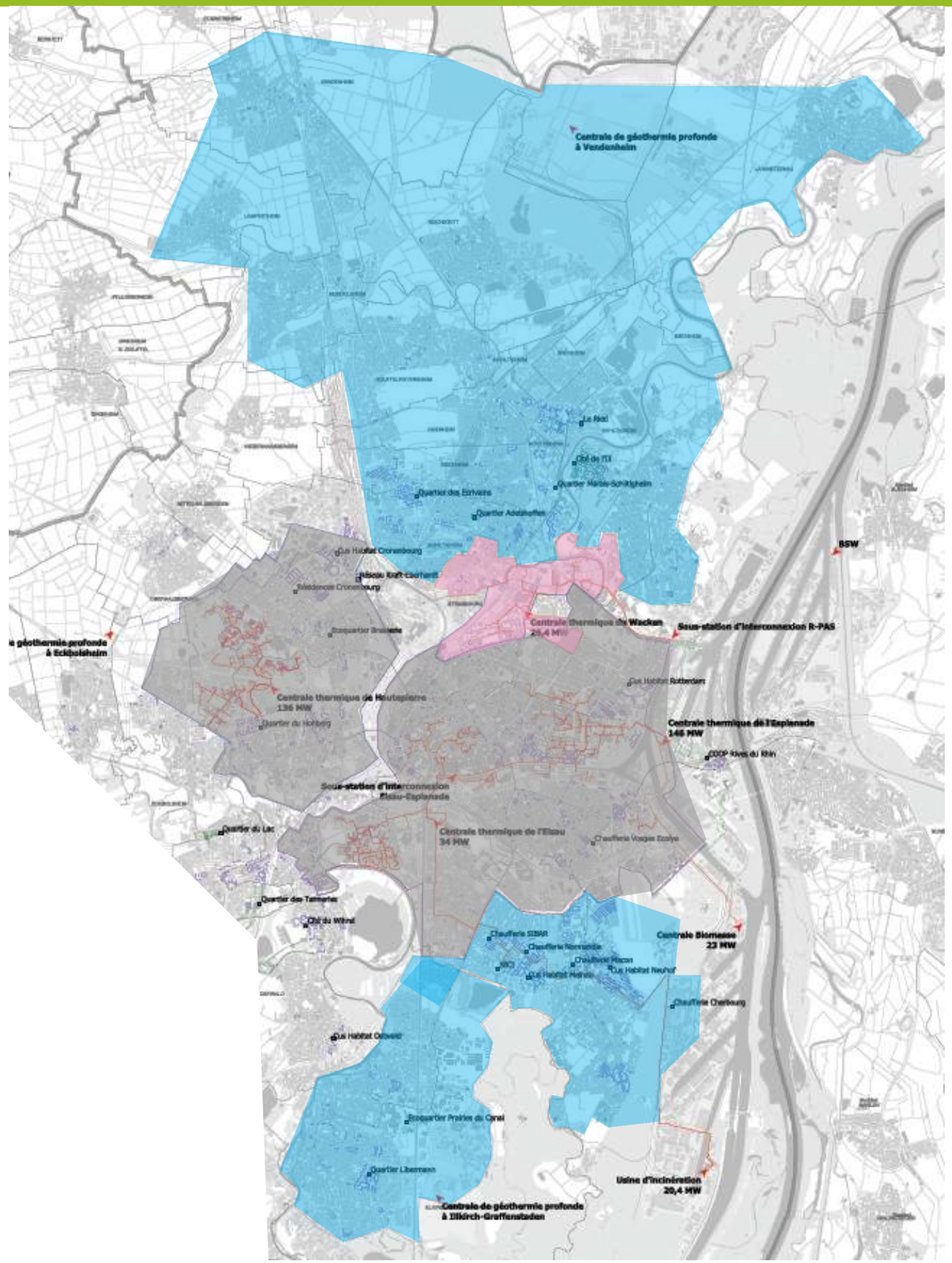
Make dictrict heating networks the lever for massive distribution of renewable energy:

- Planned development of historical networks in 2022 and strengthening of the renewable mix

- **Creation in 2016 of a heating network 92% powered by renewable energy in the Wacken district**

- Plans to create new heating networks in peripheral municipalities by 2026

Target: 800 TWh/year in 2026



A cross-border project

A Franco-German cross-border project, in the spirit of the Aachen Treaty on Franco-German Cooperation and Integration of 22 January 2019, which plans to deepen energy cooperation.

A project built jointly by a group of public partners :

- The Eurometropole of Strasbourg, pilot of the operation
- The town of Kehl
- The Land of Baden-Württemberg
- The Grand Est Region
- The Badische Stahlwerke GMBH (BSW)
- The Banque des Territoires

Objective: Concrete implementation of a community of energy destiny on the scale of the Kehl - Strasbourg greater life bassin.

Technical data

Network route 5.5 km, i.e. :

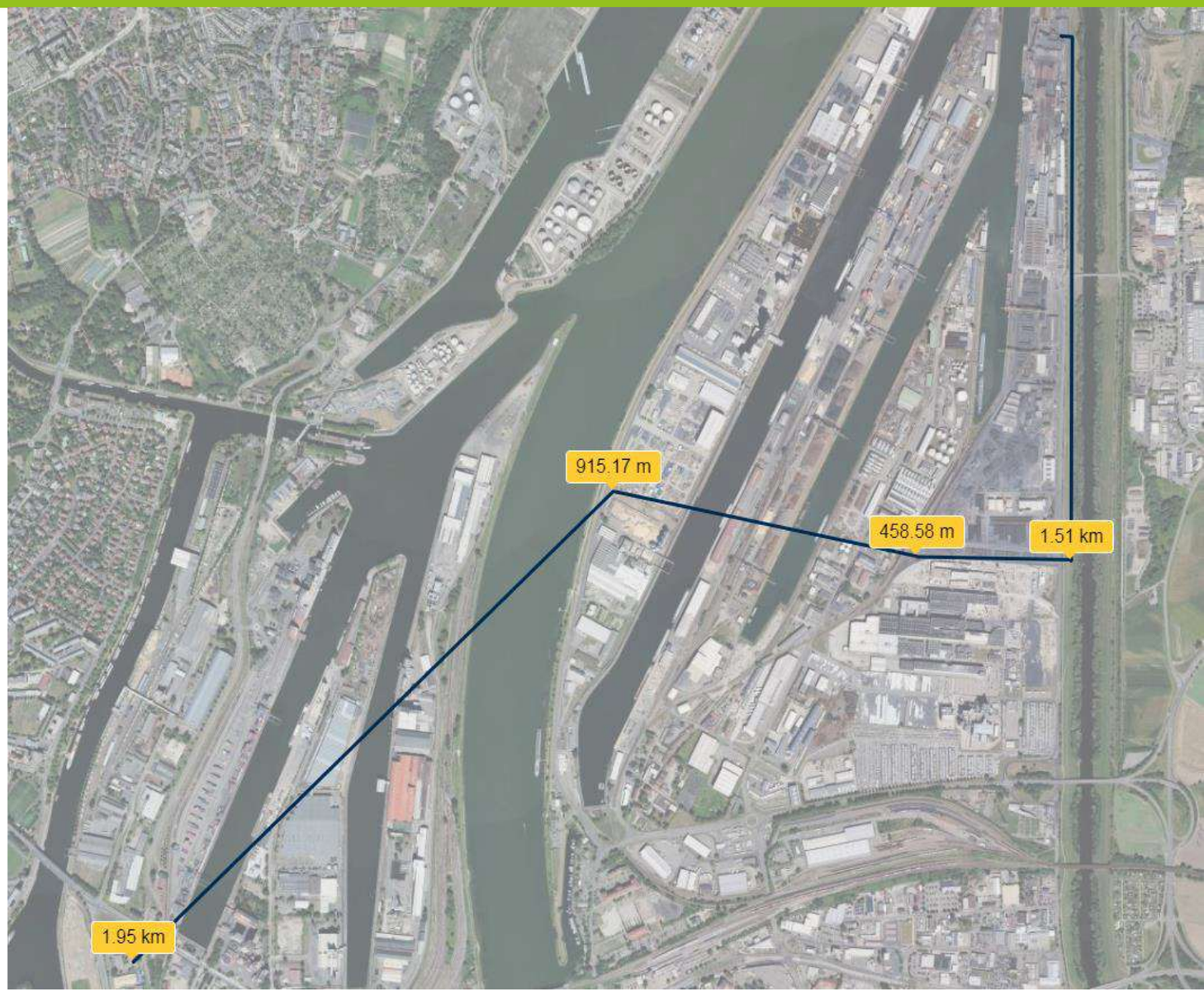
- ✓ trench driving
- ✓ Micro-tunneling on several sections including the Rhine crossing

Dimensions : oversizing to DN 350

Temperature regime High pressure 150°C - 90°C

Prospective clients

- Strasbourg district heating networks
- Kehl district heating network
- …



- **Administrative authorisations :**
  - ✓ “Water law" authorisation permit
  - ✓ Disposal/treatment plan for extracted sediments
  - ✓ Ecological study of the fauna and flora
  - ✓ Study of spawning grounds
  - ✓ Authorisation from the Rhine Navigation Commission

Creation of a cross-border semi-public company

Strasbourg.eu
eurométropole

Legal framework :

A cross-border semi-public company under French law, whose shareholders are :

	Part of Total Capital
Eurométropole de Strasbourg	46,75%
Ville de Kehl	12,75%
Land Bade-Wurtemberg	12,75%
Région Grand Est	12,75%
Banque des territoires – Groupe Caisse des Dépôts	15%

Status of implementation :

- Technical and economic model decided
- Company being set up
- Contractual frameworks with third parties under development (works contracts, sales contracts, etc.)

Objectives :

- Balanced public governance over the long term;
- Control of the resource;
- Price control for the benefit of customers and the energy transition of the territories.

Financial framework

Investment costs: €25.5m

Grants: €11.8m, of which :

- Interreg V programme: €1.045M awarded in July 2020;
- Interreg VI programme
- ADEME and DENA-BAFA

Net project cost: €13.7m

Share capital SEM Transfrontalière: €4.2m

Energy cost competitive with gas, the reference fossil fuel. Stability of cost over time, even a sharp decrease after depreciation of the installations.

Estimated depreciation 20 years, for an operating life > 40 years.

Creation of the cross-border SEM: November 2021

Launch of the project management studies: Early 2023

Administrative authorisations: 2022

Start of works: End of 2022

Estimated start of service: January 2026

Cross-border energy cooperation requires overcoming national reflexes and egoism

They require, more than other projects, a strong political determination and must be part of an energy transition programme

Language, legal and cultural barriers should not be underestimated: it is difficult, but overcoming them opens up more promising perspectives than working within territorial limits

A return on experience is necessary, to make possible the duplication of this type of experience.

There is a lack of tools to massify the recovery of waste heat, such as a guarantee fund

This is not the end of the project, but only the beginning...