Third-Party ESCo Financing of District Heating networks:

a key to accelerate the development of projects

EHP Congress in Nantes, May 8th, 2019
Financial markets and DH projects, a perfect match?

Financial markets
- Low central bank rates
- Large amount of liquidities
- ESG investment criteria

District Heating projects
- Economic relevance
- Meets ESG criteria
- Numerous existing stakeholders

What is slowing down the development of district heating networks?

E.g. in the UK, around £16 billion of new capital investment in heat networks could be needed by 2050 to achieve the level of deployment required to meet our carbon targets (1)

(1) BEIS, HEAT NETWORKS: ENSURING SUSTAINED INVESTMENT AND PROTECTING CONSUMERS, December 2018
Financial markets and DH projects, a perfect match?

**Financial markets**
- Need standardized products
- High risk premiums for assets that are perceived as complex and risky

**District Heating projects**
- Heterogeneity of projects with different risk matrix
- DH projects are small compared to financial market standards
- Price–competitiveness heavily relies on cost of capital (high capital intensity)
Third-Party ESCo Financing: a link between both worlds

Third-Party ESCo Financing allows to:

1. **AGGREGATE** projects in order to diversify risks
2. **STRUCTURE** projects in order to allocate risks
3. **ASSESS** the right cost of capital in order to optimize the energy cost

Diversified portfolio of projects with a track-record of relevant risk allocation

Optimised cost & risk sharing financing
• Kyotherm invests in renewable heat (geothermal energy, biomass, district heating, solar thermal, waste heat…) and energy efficiency (Energy Performance Contracts notably) projects

• Current portfolio: 19 projects across Europe (see map on the right)

• Project size: €1m-€50m (up to €100m with our network of co-investors)

• Kyotherm is backed by institutional investors that are independent from any industrial actor

AGGREGATE projects in order to diversify risks
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- Technology: Biomass DH network
- Energy user: School campus

- Technology: 26km geothermal DH network
- Energy user: Tertiary - Leisure

- Technology: Waste heat supply to a DH network
- Energy user: Industrial – Steel plant
2 STRUCTURE projects in order to allocate risks

- Partnership with **existing solution providers** (no internal EPC & O&M teams)
- Contractual, financial and industrial structuration of projects
- **Flexibility on the precise project structuration** (concession, private sector development, PipeCo…)
- **Optimization of the cost of capital cost** by refinancing with banks the safest part of the project
- **Greenfield** (before construction) and **brownfield** (operating networks) projects

Kyotherm can be the 100% shareholder of the project SPV or a co-investor alongside other stakeholders
Example of waste heat supply to an existing DH network:

- Waste heat recovery on the annealing process line of a steel factory plant (ArcelorMittal in Saint-Chely-d’Apcher - France)
- Construction of a connection to the nearby district heating network for heat exports to the city
- CAPEX: 5.4 m€, among which 2 m€ of subsidies secured by Kyotherm
- Length of the heat contract: 10 years
- Renewable heat recovery: 12 GWh / year
Contractual structuring allows to have a bankable project with an optimized cost of energy:
ASSESS the right cost of capital in order to optimize the energy cost

- DH projects require significant CAPEX but allow for a significant decrease of OPEX (EfW, biomass, geothermal, solar thermal, shared cost of O&M…)
- It is not unusual that 50% of a DH heat costs may be necessary for reimbursing the initial investment
- Assessing the right cost of capital is therefore essential in order to optimizing the cost of energy
- A rough figure illustrating this fact is that - 1% IRR ⇔ -10% CAPEX
Solar thermal plant can supply heat to district heating networks or to industrial sites.

Kyotherm is currently financing the construction of a circa 15,000 m² solar thermal plant (estimated annual output of 8.7 GWh/year).

Solar thermal plants have higher CAPEX than other plants but very low OPEX (electricity for the pumps, few equipment replacements...).

Solar heat sold on a €/MWh basis at a price that is competitive compared to the current gas combustion heat cost.

ASSESS the right cost of capital in order to optimize the energy cost.
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