

Heat supply contracting for blocks of flats

Heat supply contracting as a business and financing model for sustainable energy supply systems in blocks of flats

Investments in blocks of flats: the problem so far

In Austria the owners of blocks of flats that the “Mietrechtsgesetz” (the Austrian statute on tenancy) applies to must bear the cost of investment in the heating system, while the tenants meet the cost of energy, service and maintenance. In the past the result was generally that, when a heating system needed replacing, the landlord almost always chose the arrangement with the lowest investment cost. To date, in the case of blocks of flats, that has usually been a system based on fossil natural gas or fuel oil.

There are of course sustainable energy supply systems – such as geothermal heat-pumps with seasonal thermal energy storage – that involve less expenditure over a period of 20 years than fossil-based systems. Sustainable energy systems of this kind would benefit the tenants, who would pay less for energy; on the other hand the landlord would have to invest much more heavily than in the case of natural gas or fuel oil, without profiting financially. This results in a conflict of interest between landlord and tenant as regards the heating system to be selected.

Heat supply contracting as a solution for financing sustainable heating systems in blocks of flats

Heat supply contracting is a business and financing model in which a third party (a contractor) invests in installing a heat supply system which it then operates for the duration of the contract, say 20 years. In return the customers undertake to buy the heat they need in their accommodation from the contractor at an agreed tariff.

In a block of flats the contractor thus bears the high cost of the initial investment in a sustainable heating system, and then profits from low energy and operating costs in subsequent years. As a result the heat contractor can supply heat to the customers at more or less the price which would apply in the case of natural gas or fuel oil (or even lower).

Pilot scheme: heat supply contracting for the “1170 Vienna anergy grid” project

In a pilot project in Vienna’s 17th district a heat supply contractor is installing deep geothermal drillholes, solar panels and heat pumps for a housing complex comprising 18 buildings; the contractor will operate the equipment. A distribution network called the “anergy grid” connects the various buildings together; water flows through the network at a temperature between 5 and 28 °C, making it possible for excess heat from one building to be used by other buildings in the complex. As a result overall investment and operating costs for the individual

buildings are reduced. The project was put together with support from the Austrian Climate and Energy Fund, the City of Vienna and the EU SEFIPA project.

In phase 1 two buildings with 25 flats were involved; in the next few years more buildings will be connected to the grid step by step. Apart from heating and supplying hot water, the system is capable of cooling the flats to some extent in summer. The heat extracted then is stored in the ground and used for heating in winter; in this way 1 kWh of electricity consumed by the heat pump delivers 6 kWh of heat. Adding the cost of heating and hot water per flat together over the next 20 years, we get the same result as for a comparable system burning natural gas. It can be assumed that the geothermal drillholes and the anergy grid will have a service life of at least 50 years.



Aerial photograph: late-nineteenth-century housing complex – “1170 Vienna anergy grid” pilot project
Graphics: zeining architekten, BauConsult Energy GmbH, © Vienna GIS

An agreement to supply heat is concluded between the contractor and the individual tenants, specifying a standing charge in cents per year and square metre of effective floor area, plus an energy consumption charge in cents per kWh of heat consumed. The landlord makes outdoor areas available for drillholes and roof areas available for solar panels; this involves easements, for which suitable agreements are concluded.

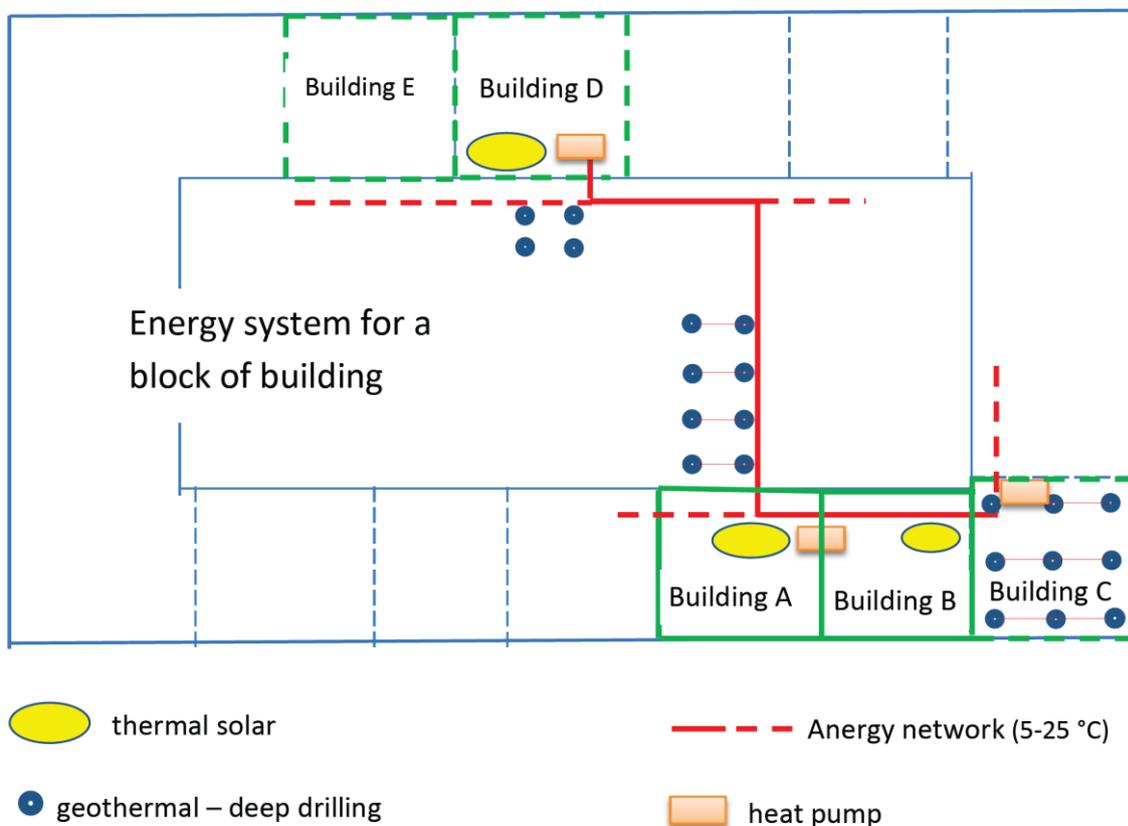


Diagram: schematic of "1170 Vienna energy grid" pilot project, graphics by ÖGUT

Comprehensive cost comparison helps in reaching an economically sensible decision

To assess how cost-effective the various different types of heating system are, a comprehensive comparison of costs is invaluable. In the past several types of expense, such as service of the gas heating applications, the chimney-sweep, renovating chimneys or kitting out the boiler room, were in many cases disregarded. This made systems burning natural gas (for instance) look more economical than they really are.

In many cases only the costs to be borne by one party (whether tenant or landlord) are taken into account when an energy system is to be selected, which most likely pushes overall costs up – usually impacting the tenants.

A comprehensive comparison of costs for a typical late-nineteenth-century house in Vienna has shown that a sustainable heat supply system with seasonal thermal energy storage, solar panels and heat pumps, viewed over a period of 20 years, costs less overall than a supposedly cheap system burning natural gas. The high initial investment in the geothermal system is more than balanced out by the low energy costs over the 20 years thereafter.

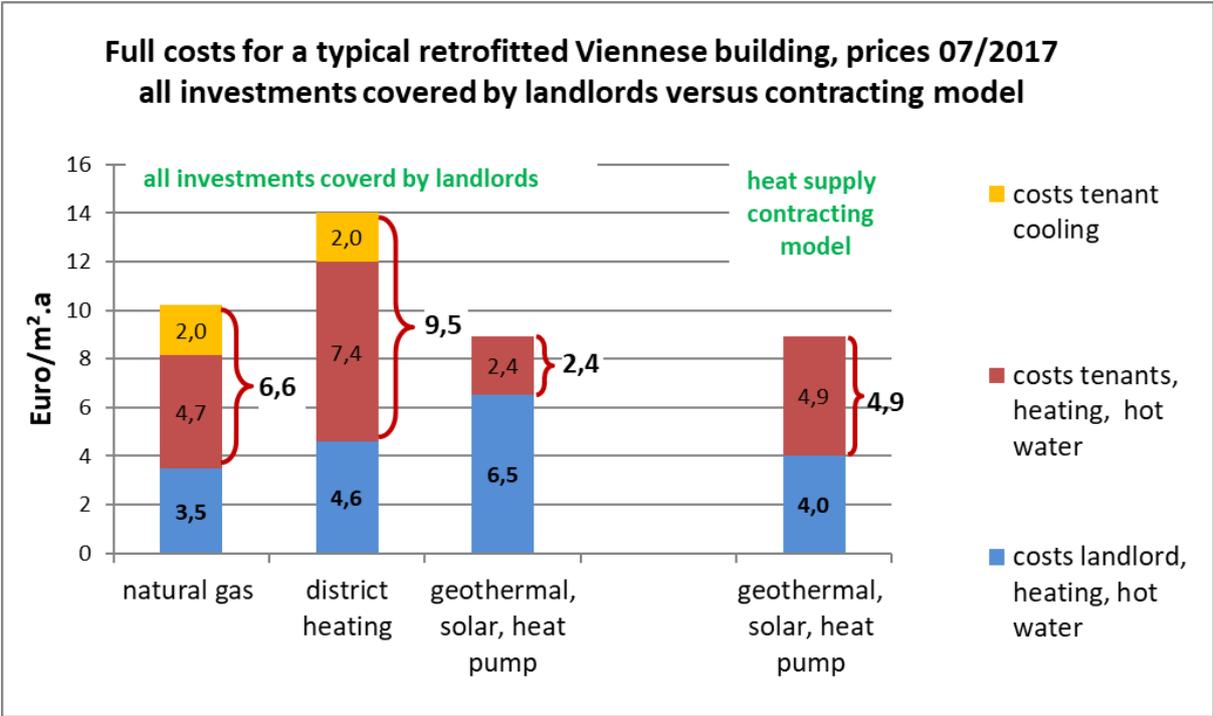


Diagram: comprehensive comparison of costs for late-nineteenth-century house in Vienna over 20-year period, investment plus operating costs, assuming that landlord bears entire cost of investment

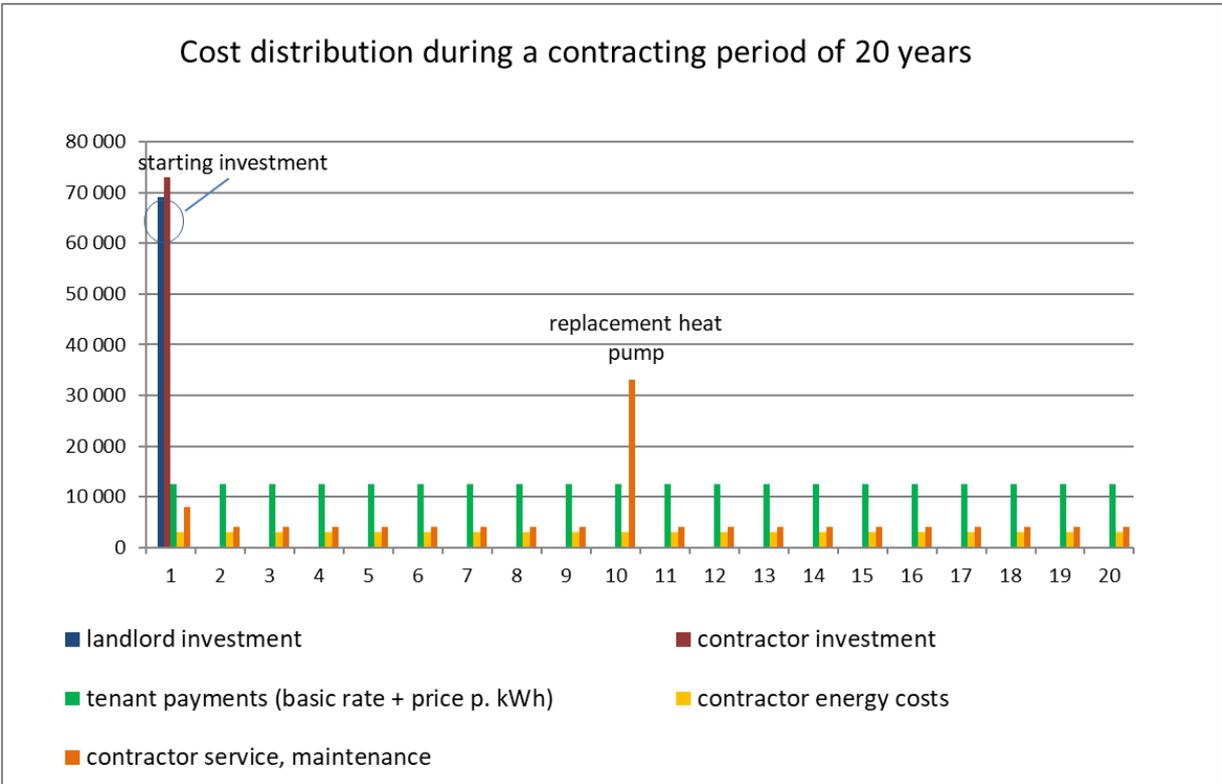


Diagram: distribution of costs if contractor initially funds sustainable “Geothermal/solar/heat pump” energy system (heat contracting)

How much potential does heat contracting have in Austria?

Heat contracting is very suitable for urban areas in which several buildings can be coupled together in an energy grid (solution for a block of buildings) to make use of synergies and reduce installation and operating costs significantly.

Heat contracting also serves to defuse the conflict of interest between landlord and tenants in connexion with financing the heating system, particularly as regards the high initial investment.

Purely for the city of Vienna, in which 64 % of all households use natural gas, fuel oil or electricity for heating, providing sustainable energy grids for residential and service-sector buildings requires 5 to 15 billion Euro of investment in all. However, the full costs (investment and operation) of such sustainable heat systems are lower compared to existing natural gas heating systems would continue to operate.

The Platform will be glad to provide further information on this subject:

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Responsibility for the Platform lies with ÖGUT (Austrian Society for Environment and Technology) and Energy Changes Projektentwicklung GmbH, who share the goal of developing pioneering facilities (financial instruments, regulatory measures and information campaigns) together with policymakers, so as to stimulate additional investment in sustainable energy systems in Austria. As part of this project a special crowd-investing platform for sustainable energy systems (www.crowd4energy.com) was set up as a Horizon 2020 project in February 2016, to run for three years.



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