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## DISTRICT HEATING SYSTEM TURNS BRIDGEPORT INTO MODEL CITY FOR GREEN ENERGY

Bridgeport, Connecticut, USA

The implementation of a low-temperature heating and cooling system in Bridgeport, Connecticut, USA, has made the city a frontrunner in clean and efficient energy production.

The United States relies primarily on steam heating, which can be a costly affair to operate and maintain as well as being a potential safety hazard.

Located 100 km/65 miles northeast of New York City on the New York-Boston corridor, Bridgeport makes out a perfect model for low-temperature district heating with its 150,000 inhabitants and available surplus heat. A traditional steam system would never be feasible, but the hot water system is.

Connecticut developer Nupower Thermal LLC is developing the district heating system and has hired Ramboll as lead designer.

In Copenhagen, Denmark, 97% of the city's 35,000 buildings are heated by a district heating system. The thermal energy is largely supplied using waste heat from various combined heat and power plants. Inspired by the Copenhagen model, Bridgeport has chosen to use a similar method to create a low-temperature heating and cooling system.

### Project data

Client: Nupower Thermal LLC

### Services we provided

District energy  
District heating

### The concept

The system uses waste heat from the existing waste-to-energy plant and a new fuel cell plant to provide low-temperature heat to downtown private businesses, city and state buildings, a sports arena and two universities. The heat from the waste-to-energy plant is not utilised today, but is simply emitted to the surroundings.

Heat with a temperature of approx. 200F is distributed in underground pipes to each building. Each building will have a heat exchanger instead of an individual gas boiler. This will free up space and is much easier to maintain.

The project started in July 2014 and is expected to be completed within 24months.  
The benefits

The project will most importantly provide cost-effective heat to Bridgeport. Another key benefit is a 70% reduction of greenhouse gas emissions, amounting to 13,000 tonnes a year.

Project Manager Jens Ole Hansen explains in more general terms what the local community gains from the green transition:

- The new system in Bridgeport will create jobs in the construction phase while supplying buildings across the city with cleaner energy. It will also help increase energy efficiency, resulting in cost savings for the public sector and a more attractive business sector with better investment options for private companies, he says.

### Owner's Engineer

Ramboll provides the overall concept and performance specifications, develops the tender material for the EPC contractor bid and is the owner's engineer during the construction and commissioning phase.

On the production side Ramboll is designing the heat extraction at the waste-to-energy plant, the extraction at the fuel cell plant as well as the peak load gas-fired boilers. Ramboll is also designing the heating network.

Finally Ramboll has teamed up with two local sub-consultants - Smith Engineering, NYC and Milone & MacBroom, CT - for the survey and design of the energy transfer stations.

Ramboll will bring in experience from Europe where low-temperature hot water networks have been used for years.



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