EMBASSY OF DENMARK
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District heating and cooling in the Czech Republic

Country level information

District heating and cooling in the Czech Republic is facing challenges and there is an opportunity for the country's heating and cooling infrastructure to be improved.

The three key developments in the Czech Republic's development in this sector were the introduction of industry to Czech cities in the 1920s, the big boom in the 1950s and 1960s due to heavy industrialisation and urbanisation, and the mass building and block heating of "panel flats" in the 1970s and 1980s, typical of this region at the time.

Modernisation has taken place since the fall of communism, but there is more to do. The sector is facing challenges from domestic, industrial and political angles. Consumers and industry are focusing more on energy saving and measuring consumption and there is increasing political focus on environmental protection and limiting emissions. There is an opportunity for the best modern solutions.

Heating and cooling is currently responsible for the largest part of energy consumption in the Czech Republic, being responsible for 56% of the total consumption, which is higher than most European countries where the figure lies around 50%.

Of the heating and cooling consumption, 52% is used for space heating, 36% is used for process heating and less than 3% is used for space cooling and process cooling. Looking forward to 2050 the demand for heating and cooling is expected to increase by 6%, where the largest increases are expected to be found within cooling, which is expected to represent up to 12% of the total heating and cooling demand by 2050.

In 2013 there were approximately 2,000 sources of central heating suppliers. These were divided into 25% of plants supplying heat only and 75% supplying heat in a CHP regime. The heat from CHP was mainly (54%) generated through the use of brown coal, where the heat from heating plants was mainly (79%) generated through the use of Natural gas and other gases. The total amount of heat generated in 2013 was approximately 161.94 TWh where almost 26% was generated through central heating.

Sources:

Special Report, Teplárenství v ČR, May 2018, Česká spořitelna

Heat Roadmap Czech Republic, 2018, Aalborg University

Assessment of the potential for high-efficiency combined heat and power generation and efficient district heating and cooling for the Czech Republic, 2015, Ministry of Industry and Trade

VEOLIA Energie

VEOLIA is present in more than 30 countries and currently operates and maintains the heating and cooling networks for hundreds of cities worldwide. Veolia Energie in the Czech Republic employs over 2200 people and has a turnover of around 11 billion Czech Crowns.

VEOLIA's solutions:

Heating: One of the core competencies of Veolia Energie in the Czech Republic is the production and distribution of heat. While maintaining a focus on limiting ecological impact they distribute heat to more than 260,000 households in the Czech Republic. Other key clients include industry, health and educational establishments, and public institutions. In the Central Moravian region VEOLIA Energie provides heat for around 44,000 flats in Olomouc, Přerov and Nový Jičín in addition to their key commercial clients.

Cooling: Veolia Energie seeks to offer cooling solutions that are technologically innovative and that provide the complete service. Cooling systems are centralised, with the intention of lowering costs for consumers and eliminating the need for local installation.

Source: www.veolia.cz

ŠKO-ENERGO

ŠKO-ENERGO completely supplies Škoda Auto with, among other things, heat, cooling water, compressed air and natural gas. In addition it supplies a total of 12,000 households, businesses and institutions in Mladá Boleslav with both heat and hot water.

ŠKO-ENERGO's solutions:

Heat, hot water and electricity: Heat and electricity are produced in the heating plant, which has 5 boilers that burn brown and black coal, to which biomass is added. ŠKO-ENERGO supplies heat through the distribution company Centrotherm to a total of 12,000 households, businesses and institutions in Mladá Boleslav.

Industrial, cooling and waste water: Industrial water is produced in the Bradlec Water Treatment Plant, which is pumped from the Jizera River. Škoda Auto consumes 2,000,000m^3 per year of this water in the production of cars.

Source: www.sko-energo.cz

Plzeňská Energetika

Plzeňská Energetika is a leading heat and electricity producer in western Bohemia. It operates a CHP plant with a total thermal capacity of 401 MWt and a total installed electrical capacity of 90 MWe. Plzeňská Energetika supplies thermal energy to approximately 25% of all heat customers in Plzeň, in particular industrial companies.

Plzeňská Energetika's solutions:

Heating: Central Heat supply (CZT) is a heating system where heat is generated centrally in one source and then distributed to multiple buildings by heating networks. Heat is produced in a cogenerations process which saves about 35% of fuel. The heating system has a total length that exceeds 40km. CZT currently supplies heat to apartment buildings, large industrial buildings, but also provides process heat and steam for production purposes.

Cooling: The company offers absorption refrigeration equipment. It is designed to supply cooling energy produced by utilizing waste heat sources, operates on a similar principle known to conventional refrigerators. The hot water energy is converted to cooling energy by this device. The cooling capacity of the offered devices spans from 20kW to 20,000kW.

Source: www.pe.cz