



**FOCUS
EMERGING
DH MARKETS**

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PRESENT STATE OF THE HUNGARIAN DISTRICT HEATING SECTOR WITH FUTURE TRENDS AND INVESTMENTS

The article presents the short history of the Hungarian district heating sector, which supplies 650,000 apartments. 45 % of the 30 – 35 PJ/a DH is co-generated at a 71 % natural gas and 23 % renewable share. At present, we have many projects under preparation or in the pipeline, as a result of which at least 200 MW geothermal, 400 MW biomass and 50 MW waste-based district heating production capacities are expected to be installed and, thus, the share of green energies may exceed 50 % by 2025. The tendencies outlined prove that DH in Hungary has taken a direction on the European route toward 4GDH.

The first district heating (DH) system in Hungary, providing heat for the building of the parliament, was put to operation in 1889. In the early 1950's, DH was provided from industrial plants, and from 1958 on, big volume DH started in Budapest. This, however, was not due to a long-term energy strategy and city planning considerations, rather it was a consequence of the great number of panel buildings erected at that time, which required DH.

The economic and energy policies of the 60's, 70's and 80's missed the development of controllable, to the needs adjusted space heating, the metering of heat consumed, and any form of incentives for consumers to reduce heat consumption. Instead of high efficiency CHP requiring higher investment costs, cheap but less efficient oil and, later, natural gas-fired heat-only hot-water boilers were preferred.

The period between the 90's and 2000 was the most difficult one in the history of Hungarian DH. Due to rapidly increasing energy costs, a permanent competitive disadvantage started to develop against competitors in the heat market, mostly against the natural gas based individual space heating. This, hand in hand with limited investments due to lack of resources, started the erosion of DH schemes which now serve about 650,000 apartments.

Some major data of the Hungarian DH schemes are summarized in Table 1.

BASIC DATA OF HUNGARIAN DISTRICT HEATING	
No of settlements with DH	96
of which village with DH	1
No of DH supplier licensees	102
No of DH systems	219
of which No of systems with peak load <10 MW	148
No of DH related CHP plants	114
Total length of network (km)	2,177
Maximum primary temperatures (nominal)	
supply (°C)	125-130
return (°C)	70-75
Avg heat loss of the grid (%)	12-13
Total installed (available) heating capacity (MWth)	7,662
No of building substations	14,858
of which multi-building substations (%)	14

Table 1: Some characteristic data of the DH systems in Hungary
Source: MEKH-MaTáSzSz

Although discontinuation of the feed in tariff system in 2011 posed a challenge toward the DH community, it initiated, nevertheless, significant innovation processes. Accordingly, CHP plants were integrated for balancing the power system, the ground gathering of green energy has achieved an unprecedented pace with a consequence that at present in 19 settlements biomass, in 13 geothermal energy, in 2 biogas and in one waste is used in their DH systems.

Figure 1 shows the development of DH production between 2010 and 2017. 70 % of DH has been generated by DH producers, while 30 % by the DH providers. The share of cogenerated DH dropped from 60 %, characteristic for the era of feed in tariff system, to about 45 %.