

# Plans of geothermal heating development in selected towns and role of the EEA - Konstantynów Łódzki Municipality

Henryk Brzyszczyk - Mayor  
Tomasz Sadzyński Przedsiębiorstwa Komunalnego Gminy  
Konstantynów Ł. Sp. z o.o. - President



### Favourable location in respect of:

- Łódź, the capital city of the Region
- Intersection of Motorways A1 and A2
- Newly planned express way S14
- International airport
- Well-developed railway network

### Assets of the Area:

- Well-qualified workers
- A centre of new technologies
- Łódź Special Economic Zone
- Attractive capital-investment lands
- Industrial traditions



- Town's surface area: **27.25 km<sup>2</sup>**
- Population: **17,800**
- Location at the intersection of National Road 71 and Regional Road 710



The Municipal Company of Konstantynów Łódzki is the operator of the district heating network in the town.

However, the Veolia Energia Łódź S.A. Corporation started to supply heat from the district heating network of Łódź in the **heating season of 2016/2017**.

Earlier, heat had been supplied from the town's own district heating station, which used to generate about **51.8 TJ** of thermal energy a year. That facility is not operational any more.

The district heating station is situated about **20 m** away from the site selected for the newly designed geothermal water well, Konstantynów Łódzki GT-1, and provides a good location for connecting the well to the district heating system.



## **Thermal energy generation structure** in the Konstantynów Łódzki Municipality

Individual sources	<b>69.1%</b>
Municipal Company	<b>19.8%</b>
Housing Cooperative	<b>11.1%</b>

## **Use of fuels for the production of heat energy** in the town's district heating system

Coal	<b>86.55%</b>
Biomass	<b>12.26%</b>
Other	<b>1.19%</b>



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## **Thermal energy generation structure** in the Konstaktynow Łódzki Municipality

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## Municipal Company of the Konstantynów Łódzki Municipality

Installed capacity	<b>10.18 MW</b>	Since September 2016, thermal energy has been supplied to the district heating network by the Veolia Energia Łódź S.A. Corporation.  <b>70 thermal nodes</b> are connected to the network.
Heat production	<b>53,071.3 GJ</b>	
Working stream	<b>124.2 Mg/h</b>	
Thermal parameters of water:		
WP network	<b>120/65°C</b>	
NP network	<b>95/70°C</b>	
Ordered capacity	<b>7,873 kW</b>	
Total length of the local district heating network:	<b>6.5 km</b>	Until 2016, the Municipal Company consumed <b>1,525,000 m<sup>3</sup></b> of natural gas annually.
Presently, the supplied power control method uses the parameters of the Veolia Energia Łódź S.A. Corporation		The floor surface of the heated buildings amounted to <b>119,000 m<sup>2</sup></b> .





Konstantynów Housing Cooperative	Individual Heating Sources
<ul style="list-style-type: none"><li>- 2 gas-burning boilers</li><li>- <b>55 multi-family houses</b></li><li>- <b>62 thermal nodes</b></li></ul>	<p>The following fuels are used:</p> <ul style="list-style-type: none"><li>- natural gas: <b>53.9%</b></li><li>- coal: <b>41.2%</b></li><li>- fuel oil, biomass, and solar thermal collectors</li></ul>
Total estimated thermal capacity: <b>3.5 MW</b>	Total estimated thermal capacity: <b>27.7 MW</b>
Heated houses, floor area: <b>114,656 m<sup>2</sup></b>	individual homes, floor area: <b>266,200 m<sup>2</sup></b>



## Geothermal resources in Konstantynów Łódzki

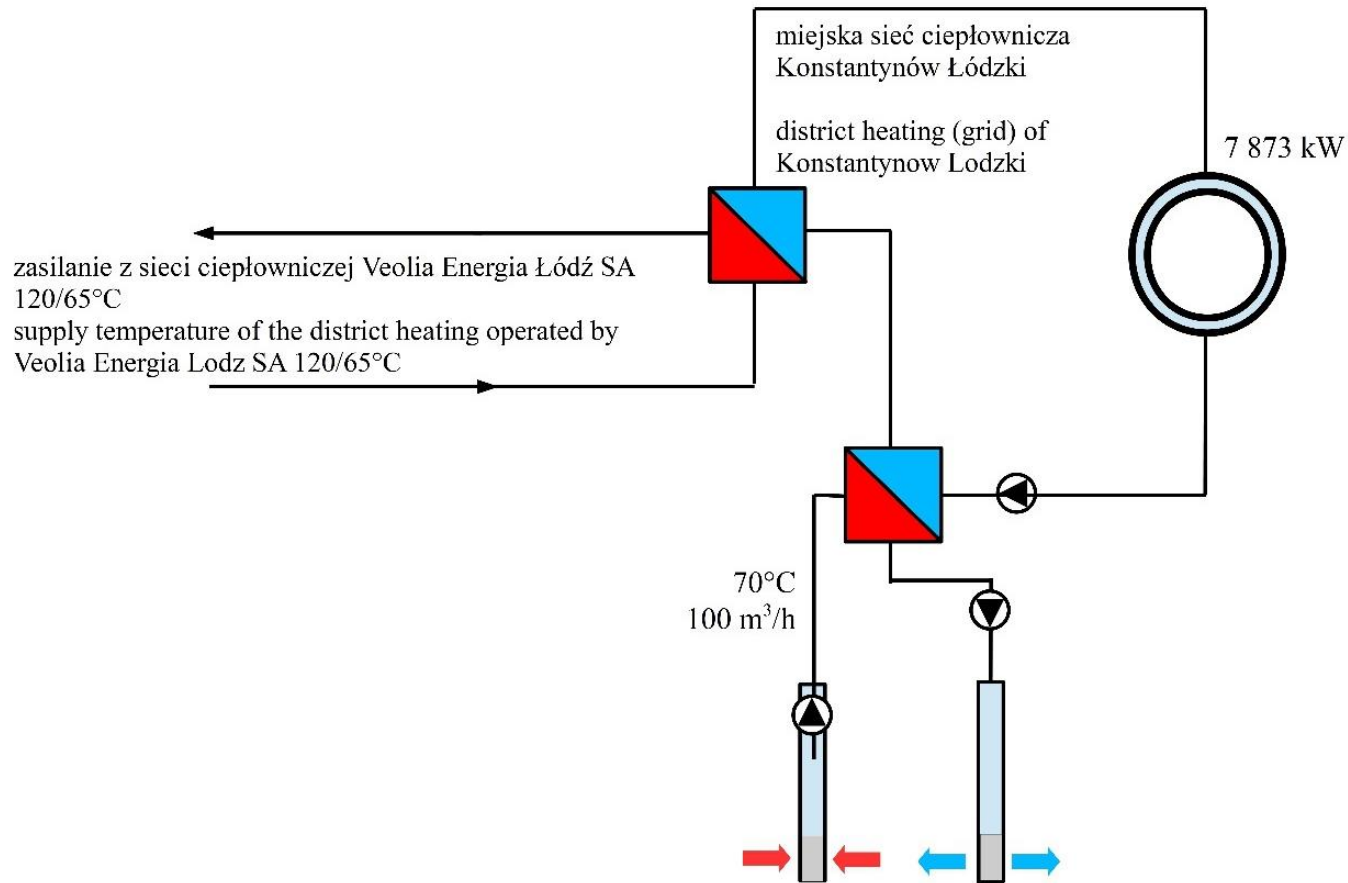
### Resource parameters that may be obtained in Konstantynów Łódzki:

- Water output: **130 m<sup>3</sup>/h**
- Temperature: **70°C**
- Mineralisation: **40-120 g/l**

(Consequently, a closed system is required: a double geothermal system.)

Depth interval: **2,100-2,700 m (Lower Jurassic)**

In the conditions of the co-operation of the double geothermal system with the municipal district heating network, the use of geothermal energy would increase to ca. **101 TJ/year**.



A process diagram of the connection of the geothermal energy source to the power generation system of Konstantynów Łódzki.



## Use of geothermal resources

	Winter	Summer
Source Capacity	6.6 MW	6.6 MW
Demand of the municipal heating network	7.87 MW	0.8 MW
	<b>Deficit: 1.27 MW</b> covered by the Veolia	<b>Surplus: 5.8 MW</b> to be used by the Veolia

Iceland   
Liechtenstein  
Norway grants

**Thank you for your attention!**



**Konstantynów  
Łódzki**