De-centralising the energy supply - How Bratislava disconnected

Zuzana Sternová, Building Testing and Research Institute
Roman Grünner, Slovak Green Building Council SKGBC

EU-GUGLE Conference, Aachen, 2016_04_22

Legal conditions

According to the national act 100/2014:

• During the construction of the system of thermal installations in the defined territory, the supplier of heat is considered as concerned authority and at the same time has the status as a party. Accordingly, this also applies to changes and modifications of the existing system of thermal installations.

• Heat supplier as a respective authority protects the public interest of all parties. As the holder of the permit for distribution of heat (heat supplier) acting in accordance with the Construction Act as the authority concerned, is entitled to issue a binding opinion only to the extent whether the building permit will not jeopardize the continuity and safety of its operation.
Legal conditions

According to legal frame, an efficient DH system supplies at least 50% of the heat produced from RES or 50% of heat from industrial processes, 75% of the heat produced by high-efficiency cogeneration or 50% of the heat produced by a combination thereof.

Authoritative position of the municipality is needed if the installed capacity of the system of thermal installations exceeds 100 kW.

Legal conditions

• The energy supply from DH can be terminated by an agreement with the supplier, if the customer pays economically justified costs caused by disconnection from the system.
• If DH uses RES of 10% - 60%, the customer can disconnect only if the new supply covers RES by 20% and higher.
• If a heat supplier supplies more than 60% of heat from RES, the customer may disconnect only if ensuring full supply from RES.
## Requirements

Global indicator primary energy on ultralow-energy construction: upper border of energy class A1

<table>
<thead>
<tr>
<th>Building category budov</th>
<th>Energy Performance of Buildings energy in kWh/(m².a)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A0</td>
</tr>
<tr>
<td>Family houses ≤ 40</td>
<td>81-160</td>
</tr>
<tr>
<td>Apartment buildings ≤ 32</td>
<td>64-126</td>
</tr>
<tr>
<td>Office buildings ≤ 60</td>
<td>121-240</td>
</tr>
<tr>
<td>Schools ≤ 34</td>
<td>69-136</td>
</tr>
</tbody>
</table>

### PILOT PROJECT - P. Horova 17, 19

The apartment building

- Built in 1988,
- 7 floors, 42 apartments, 3 staircases
- middle section of three sections
- conditioned GFA 3,786.3 m².

- Energy consumption for heating was reduced by 74.8%
PILOT PROJECT – P. Horova 17, 19

The total installed thermal power for heating and DHW is 98.92 kW which is less than 100 kW (requirement by law);

Heat and DHW proposed with 100% use of renewable energy technology, heat pumps (cascade of 4 electric heat pump air / water firm Stiebel Eltron) with additional electric heating pads;

Installation of small photovoltaic sources with the performance of 10 kWp on the roof of the apartment building.

Nevertheless, the DH producer made an objection causing the delay of the building permit issue for construction of facilities for heat and TV.
Realization of disconnection

Despite the disconnection of the central section of the residential building from DH, the connections passing through the house had to be preserved.

New distribution of heat and HW

Because of new routes for heat and hot water, it was necessary to assess the static load-bearing walls, especially at the entrance of the first floor.
Heat pumps and photovoltaic

Thank you for your attention