LEASE FINANCE AS AN EXTERNAL INVESTMENT SOURCE FOR DISTRICT HEATING OF UKRAINE

M. Kliuchnikova
National Technical University of Ukraine “Kyiv Polytechnic Institute”, 37, Peremohy Ave., Kyiv 03056 Ukraine, marina@kluchnikovs.net

Abstract. District heating (DH) systems in Ukraine are characterized by excessive capacity, inefficient and outdated technologies. At the same time DH has a number of significant advantages that make its preservation a matter of great state and social importance. Average residential tariffs cover 70% of district heating supply costs including generation but excluding modernization investment. In the near future it is expected that Ukrainian tariff for heat generation is going to be formed based on stimulating regulation (regulatory asset base (RAB) principles) replacing existing cost-plus pricing system. Transition to RAB-based tariff system is supposed to stimulate capital investment and asset modernization in DH companies. With that the companies will be facing managerial decisions related to choosing of investment tools and sources. Two main sources of external investment are bank loan and leasing. DH segment compared to the leading leasing segments has a number of significant specifics that are being analyzed in this research. Thus the DH market is a natural monopoly with adjacent markets which implies high intensity of state regulation. Most important is tariff regulation as it effects DH company’s revenue and ultimately its chance to access external investment sources.

Keywords: lease finance, investment, district heating, public services, infrastructure.

Introduction

District heating is of significant economic and social importance in Ukraine. It accounts for a large share of total primary energy use, particularly natural gas, and district systems supply heat to about 43% of its residences. Heat consumption market size in 2012 was estimated to be almost 30 billion UAH. (Saratov, 2012a) At the same time there are factors that prevent efficient modernization of capital assets of this segment.

This research focuses on heat-only plants, licensees of the National Commission for Regulation of Municipal Services, examining specific advantages that leasing financing holds for DH segment as well as factors that hinder penetration of this financial tool. For this purpose a survey was distributed among licensees of the Commission with the results of this survey are stated in this paper.

Results

District heating systems in Ukraine are characterized by excessive capacity, inefficient and outdated technologies: the capital stock is in critical state with most assets close to or beyond the end of their design life. Most district heating systems were constructed in 1960-80s during mass housing construction and were not reconstructed since. Thus in many cases boilers of those DH companies have efficiency output of about 70-80%. At the same time average residential tariffs cover 70% of district heating supply costs including generation but excluding modernization investment. As heating tariffs do not cover costs, differences are covered by direct subsidies to heat providers from national or local budgets. However, it often happens that these subsidies are not paid in time or in full, and it further deteriorates the district heating companies’ finances and limiting their ability to pay their operating expenses such as fuel bills. Many cities, for political reasons, set tariffs far below the needed levels and commit to compensate the difference to district heating companies from the municipal or regional budget. Thus the tariffs are too low to generate sufficient funds to invest in modernization. Furthermore tariff system implies that tariffs are set for one year and any savings made may lead to a decrease in tariffs for the next year with no or insufficient provisions made to cover the cost of investment. While tariffs have been raised over the last decade, they are still below full cost-recovery
level and do not allow for investments needed to improve or replace assets. (International Energy Agency, 2012).

The National Commission for Regulation of Municipal Services is tasked with establishing tariffs for heat, based on Regulatory Asset Base (RAB) system for heat generation and transportation. The procedure of heat transportation tariff forming based on stimulating regulation (RAB principles) has been established by the Resolution of the National Commission for Regulation of Municipal Services (National Commission for Regulation of Municipal Services, №. 357, 2012). Similar procedure is to be established for heat generation in the near future. As of January 2012 the Commission had licensed 268 district heating companies (entities with total capacity over 20 Gcal/hour) that accounted for 97% (76.9 billion Gcal) of annual heat sale in Ukraine in 2011 (Saratov, 2012b).

World practices have shown that RAB-based tariff regulation in the district heating sector has several advantages for DH companies and customers over the existing cost-plus pricing system. Companies in the RAB system provide a secure payback and return on investment sufficient to service loans and generate profits. Additionally, they are stimulated to reduce their costs because, unlike Ukraine’s conventional cost-plus pricing, the RAB system allows them to retain the funds resulting from cost cutting. The system also implies that tariffs are set for three and then for five years vs one year.

Transition to RAB-based tariff system will stimulate capital investment and asset modernization in DH companies. With that the companies will be facing managerial decisions related to choosing of investment tools and sources. Two main sources of external investment are bank loan and leasing. In our research we looked at specific advantages that leasing offers as well as specific barriers of DH area for leasing financing.

Leasing market of Ukraine is characterized by the highest performance of vehicle segment.

At the end of Q2 2013 ongoing financial leasing contracts in transport accounted for 54.23% of all contracts, the next biggest segments were agricultural equipment (23.44%), construction (4.67%) and services (3.16%) industries, whereby the share of contracts in agriculture increased by more than 7.5 percentage points compared with the end of Q2 2012. Value distribution of financial leasing contracts among leasing objects at the end of that period was similar: transport (57.39%), agricultural equipment (19.67%), computer equipment (2.91%) (Ukrainian Union of Lessors, 2013).

Automotive assets, i.e. passenger cars and commercial vehicles, accounted for 60% (€151.6 billion) of total new volumes granted during 2012, remaining the largest individual asset segment of the general European leasing market too (Leaseurope, 2012).

District Heating segment compared to the leading leasing segments has a number of significant specifics (Table 1). DH market is a natural monopoly with adjacent markets which implies high intensity of state regulation. Most important is tariff regulation as it effects DH company’s revenue and ultimately its chance to access external investment sources.

<table>
<thead>
<tr>
<th>Segment</th>
<th>Market characteristics</th>
<th>State regulation</th>
<th>Second hand market</th>
</tr>
</thead>
<tbody>
<tr>
<td>Automotive assets</td>
<td>Monopolistic competition</td>
<td>moderate</td>
<td>Well developed</td>
</tr>
<tr>
<td>(transport)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agricultural</td>
<td>Monopolistic competition</td>
<td>moderate</td>
<td>Developed</td>
</tr>
<tr>
<td>equipment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>District Heating</td>
<td>Natural monopoly and adjacent</td>
<td>high</td>
<td>Poorly developed (available for a limited assortment of equipment)</td>
</tr>
<tr>
<td></td>
<td>markets</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Another issue that should be mentioned in regard with Ukrainian district heating as it would concern potential investors is DH market share trend. Thus low tariffs, non-payment, inefficiencies and rising fuel prices have resulted in a critical financial situation for many district heating providers. There are a number of cases of district heating system closures, for example the whole Zakarpatskaya oblast has no district heating. Generally every city develops its own city heat supply plan and chooses the level of centralization based on population density, industry production volumes, geodesic specifics of the area etc. (Figurka, 2013). At the same time centralized district heating has a number of significant advantages that make its preservation a
matter of great state and social importance. At present individual heating systems use natural gas prices set for population, that are lower that natural gas prices for DH companies (gas prices set for business corporations). Such price discrimination provides cost advantage to autonomous heating systems. If this discrimination is removed, HD company can produce cheaper heat, due to economy of scale. Main advantages of centralized DH vs. individual heating also include localization and reduction of pollution and capability to use different fuels including a number of local fuels, landfill gas, renewable energy sources, which contributes to fuel self-sufficiency of Ukraine.

DH company’s main equipment types include: commercial vehicles, special machinery (power shovels etc.) and manufacturing equipment (core equipment: boilers, pumps, gas burners, economizers, frequency converters). Updating of manufacturing equipment can significantly reduce gas and energy consumption. Major tariff component is natural gas (Table 2). Thus the focus is to be on implementing gas consumption reducing technologies.

<table>
<thead>
<tr>
<th>Heat consumers</th>
<th>Natural gas</th>
<th>Electricity</th>
<th>Labor cost</th>
<th>other</th>
</tr>
</thead>
<tbody>
<tr>
<td>population</td>
<td>68</td>
<td>7,5</td>
<td>18</td>
<td>6,5</td>
</tr>
<tr>
<td>government-financed organizations</td>
<td>82</td>
<td>4</td>
<td>9</td>
<td>5</td>
</tr>
<tr>
<td>and business corporations</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Aforementioned data provides an idea about factors that make it complicated to attract external investment sources and leasing in particular. The factors that hold back leasing penetration in the DH segment can be classified as internal and external.

**Chart 1**

Internal would include:
- mentality (DH companies have little incentive to invest into capital asset modernization with existing cost-plus pricing system),
- ignorance as to specific advantages of leasing as a financial tool.

External would include:
- economically invalid tariff (that doesn’t enable cost recovery and efficient investment in the DH systems);
- insufficient state support (f.e. leasing payments in agricultural segment are legally compensated by the state, and there is no such legislation in DH segment);
- insufficient budget autonomy (since most DH providers are indebted to stated-owned company Naftogaz, the DH companies were obligated to open special bank accounts to fully settle accounts for the gas they have consumed. At the same time the subsidies often are not paid in time or in full.);
- defective mechanism of investment return.
The survey, that included 25 HD companies, licensees of the National Commission for Regulation of Municipal Services, has shown that economically invalid tariff and insufficient state support are the biggest hindrances to development of leasing in DH segment (Chart 1).

There are certain benefits of using lease finance vs. bank loan. Among specific advantages of using leasing for DH capital asset modernization HD companies marked out: providing other sources of finance, independent from bank loans or credit lines, thereby conveying more freedom to the lessee, allowing companies to manage their working capital by spreading payments over the life of the asset, allowing to create a flexible schedule of leasing payments, which takes into account specifics of company’s business, the leasing object cannot be subjected to tax arrest. It should also be mentioned that due to high corruption level lease finance lowers the risk of no-purpose finance usage: the company is getting an asset loan vs. money loan.

**Discussion**

District heating (DH) systems in Ukraine are characterized by excessive capacity, inefficient and outdated technologies. At the same time DH has a number of significant advantages that make its preservation a matter of great state and social importance. At the same time average residential tariffs cover 70% of district heating supply costs including generation but excluding modernization investment; differences are covered by direct subsidies to heat providers from national or local budgets. However, it often happens that these subsidies are not paid in time or in full, further deteriorating the district heating companies’ finances. In the near future it is expected that Ukrainian tariff for heat generation is going to be formed based on stimulating regulation (regulatory asset base (RAB) principles) replacing existing cost-plus pricing system. Transition to RAB-based tariff system is supposed to stimulate capital investment and asset modernization in DH companies. With that the companies will be facing managerial decisions related to choosing of investment tools and sources. Two main sources of external investment are bank loan and leasing. DH segment compared to the leading leasing segments has a number of significant specifics that are being analyzed in this research. Thus the DH market is a natural monopoly with adjacent markets which implies high intensity of state regulation. Most important is tariff regulation as it effects DH company’s revenue and ultimately its chance to access external investment sources. Major tariff component is natural gas (68-82% of tariff). Thus the focus is to be on implementing gas consumption reducing technologies. Another important feature of HD segment is that there hardly any second hand market for manufacturing equipment vs. agricultural equipment or automotive assets.

The factors that hold back leasing penetration in the DH segment can be classified as internal and external. The survey made among HD companies, licensees of the National Commission for Regulation of Municipal Services, has shown that highly influential factors are economically invalid tariff and insufficient state support. At the same time there are certain specific benefits of using lease finance vs. bank loan in DH segment, which should be taken into account by a potential lessor.

**References**


