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THE TRANSFORMATION OF ENERGY RISK IN THE BALTIC STATES

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ABSTRACT

The aim of the article is to reveal the process of energy risk transformation, which creates concrete hazards for citizens of the Baltic States. The article analyzes two sides of the same problem - district heating (DH) and the renovation of multi-apartment houses. The article will show that the transformation of energy risk is affected by the legacy of a specific constellation of technological, economic and social elements of Soviet infrastructure that appears in a specific and particularly precarious shape under conditions of liberal market capitalism as regards energy security.

The article consists of four parts. The first part describes the issue of district heating and shows its relation with social science. The second part describes the relation of energy risk with modernization and shows how the change of structural conditions (change from industrial society to risk society) transform concrete aspects of energy system (DH which

were build to meet society's need) from less risky to a serious hazard for society (which due to the rise of risk society no longer satisfies society's needs and becomes an unsolvable problem). The third part discusses the two aspects of state socialism housing policy: social and economic. The social aspect of Soviet housing policy was a part of society's social homogenization, carried out by Soviet authorities. The economic aspect refers to the Soviet state's priorities that pushed the housing provision into the periphery of social policy. The fourth part discusses the attempts of already independent countries to solve DH problems. It is demonstrated that active and independent decisions requiring business model was imposed on passive society strongly dependent upon government decisions. Therefore, the renovation process of multi-apartment houses is complicated. The switchover to a market economy after the emergence of private property and rise of energy prices as well as the state's inability to subsidize the DH to a large extent, have highlighted the losses resulting from the multi-apartment buildings' poor quality.

KEYWORDS

Transformation, energy risk, risk society, modernization, the Baltic States

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INTRODUCTION

District energy is used in this context to distinguish between single building or single customer systems and those DH networks which serve multiple customers across an urban district or sub-region. People living in multi-apartment houses have to pay huge prices for inefficient service and, most importantly, cannot control the service. It is obvious that the DH model is not to blame (though it is often blamed in the public discourse),[1] but the structural conditions which undermine the functionality of DH. The renovation of multi-apartment houses (modernization/renovation) is an attempt to adjust the functionality of DH under conditions of a social and economic liberal market but the rise of the risk society[2] "makes" this task an uneasy one. This situation seems to become an insurmountable obstacle for each elected political power. Even though during the change in renovation process achieved during 2013 is promising, in this article we will show that a quite formidable obstacle is posed by the legacy of a specific constellation of technological, economic and social elements of Soviet infrastructure that appears in a specific and particularly precarious shape under conditions of liberal market capitalism.

The aim of the article is to reveal the process of energy risk transformation which creates concrete hazards for citizens of the Baltic States, by analyzing two sides of the same problem - district heating and the renovation of multi-apartment houses.

The article consists of four parts. The first part describes the issue of district heating (DH) and shows its relation with social science. It presents different tendencies of DH development in various EU countries and different problems as well as opportunities regarding DH throughout the countries. The second describes the relation of energy risk with modernization and shows how the change of structural conditions (change from industrial society to risk society) transforms concrete aspects of energy system (DH which were build to meet society's need)

[1] According to Heat Roadmap Europe 2050 II study cheaper and faster decarbonisation of the European energy system can be achieved through redesigning the heating and cooling supply and overcoming the constraints of compact urban environments by bringing renewable energies into the cities. This can be achieved through deployment of efficient *district heating and cooling networks* which together with combined heat and power, biomass, solar thermal, large-scale heat pumps, individual heat pumps, geothermal energy, as well as heat from waste incineration and excess heat from industry, can reduce the costs of total heating and cooling supply for buildings in the range of 15 to 22% (*2030 Climate and Energy Policy Framework: The Parliament Calls for a Heat Strategy,* Heat Coalition – Press Release, Brussels (2014) // http://www.euroheat.org/Files/Filer/documents/pressrelease/140205_Heat%20Coalition%20on%20Parliament_s%202030%20report%20-%20Press%20Release.pdf.

[2] Ulrich Beck, "The Politics of Risk Society"; in: J. Franklin, ed., *The Politics of Risk Society* (Cambridge: Polity Press), 1998; Ulrich Beck, *Risk Society: Towards a New Modernity* (New Delhi: Sage), 1992.

from less risky to a serious hazard for society (which due to the rise of risk society no longer satisfies society's need and becomes unsolvable problem).

The third part discusses "risk creation" by presenting two aspects of the state socialism housing policy: social and economic. Provision of accommodation and intensive housing development is common to all postwar Western welfare states. The social and economic element of that policy can be identified generally analytically. However, the Soviet Era policies, like all other areas of public life, had their own peculiarities. The social aspect of Soviet housing policy was a part of society's social homogenization, carried out by Soviet authorities. Meanwhile, the economic aspect refers to Soviet state's priorities that pushed the development of consumption (including housing provision) into the periphery of social policy.

The fourth part analyses how the aforementioned changes of these social and economic aspects caused a DH problem. Discussing the attempts of already independent countries to solve DH problems, it is shown that active and independent decisions requiring a business model were imposed on a passive society strongly dependent upon government decisions; therefore, the renovation process of multi-apartment houses is complicated. The switchover to a market economy after the emergence of private property and the rise in energy prices as well as the state's inability to subsidize the DH to a large extent, have highlighted the losses resulting from the multi-apartment houses' poor quality. These losses were felt mostly by the less wealthy segments of society.

1. ISSUES OF DISTRICT HEATING

District heating (DH)—where the heat is produced centrally and hot water is piped to the buildings—is one of most effective contemporary heating infrastructures from many point of views.[3] It can improve the efficiency of energy

[3] 1. EQUIPMENT AND MAINTENANCE: DH has minimal space requirements at the customer end with equipment of a compact size, which is simple to use, run and maintain; With DH no maintenance is necessary for the customer, the DH utility can take care of energy and service 24 hours a day, typically without ever entering the house;
2. COMFORT: DH guaranties an unlimited amount of heating and domestic warm water 24/24; Customers have no concern over fuel availability; DH is easy to handle and works automatically
3. COSTS: DH entails moderate investment costs and very low maintenance costs for the customer; Prices of DH are competitive, predictable and steady, tariffs are public
4. RELIABILITY AND EFFICIENCY: DH is known as very reliable, because district heat is produced at multiple production facilities using a variety of fuels; DH has a flexible and sustainable fuel mix and does not depend on a specific fuel; DH substations have a long lifetime and a high efficiency
5. ENVIRONMENTAL ISSUES: DH is often based on the utilisation of surplus heat which would otherwise be lost (surplus heat from industry, cogeneration of heat and power etc.) and thereby avoids the use of fossil fuels and related emissions; DH can use a wide variety of local energy sources and renewables (wood waste, straw, municipal waste and sewage sludge etc.) DH has low climate impact: low primary energy consumption and CO2 emissions. DH reduces local pollutants as dust, fine particles, sulphur dioxide and nitrogen oxides by relocating exhausts from individual boilers to centralised chimneys. Due to economies of scale, far more effective pollution prevention and control measures can be implemented incentral production facilities (Euroheat & Power, *District Heating in Buildings*, Task Force Customer Installations (Brussels: Euroheat & Power, 2011)).

use (especially where heat production involves exploiting combined heat and power (CHP) or waste heat from existing power stations) and has the flexibility to accommodate heat from a variety of sources, including biomass (The Potential...2009). In postwar Europe the development the infrastructure of DH was important for the spread of housing. But the expansion of DH in various countries was different. While DH has been deployed in the UK since the 1950's, it has achieved only a low market penetration and currently provides less than 2 % of UK heat demand. In Finland and Denmark DH is the dominant heat source, accounting for 49% and 60% of total heat supply respectively.[4] Yet more consumers use DH in postsocialist countries. For example, in Lithuania – 67%, Latvia – 64%, Estonia – 54% of citizens served by DH (Table 1). In Europe the justification for DH was the need to reduce imports of energy by improving energy efficiency, especially after the rise in oil price in the 1970s, at which point oil exporting countries established oil embargo. Now Europe is in the position where both climate change and a desire to reduce energy imports especially of natural gas are major drivers for DH. DH is a perspective instrument to meet recent and future public demands and to create civilized infrastructure in the cities.

Today for the third time the European Parliament has recognized the importance of heating and cooling in its report on a 2030 climate and energy policy framework. In the past, the Parliament has twice called on the Commission to avoid maintaining a narrow focus on electricity, and to fully integrate the heating and cooling sector into the pathways towards a sustainable energy model[5]. Nevertheless, heating and cooling remains largely neglected by EU policies despite representing over 45% of the final energy consumption in the European Union compared to 20% for electricity (IEA, 2012).

The centralized communication system, including district heating, was already widely developed during Soviet time, with the purpose to facilitate the life quality of people living in multi-apartment houses. But after the demolition of Soviet system, the DH became a heavy burden for the most of the population. Paradoxically, we could say that post-socialist countries are in a situation similar to Western European countries in the 1970s. The difference is that post-socialist countries had already developed a DH system, but it was not effective.

[4] *The Potential and Costs of District Heating Network*, A report to the Department of Energy and Climate Change, Pöyry Energy (Oxford) Ltd (2009) // http://www.ecolateral.org/distributedheatpoyyre0409.pdf.
[5] *2030 Framework Incomplete Without Heating and Cooling.* Policy Statement. Euroheat & Power Calls on the EU to Tackle Heating and Cooling in Its 2030 Framework. Brussels (2014) // http://www.euroheat.org/Files/Filer/documents/news/140128_EHP_2030%20climate%20and%20energy%20package_Policy%20Statement.pdf.

In recent years (especially in the EU) DH attracts more attention from researchers.[6] Mostly such studies are technological. First of all it is related to the greenhouse gas emission reductions. Much has been achieved since the EU adopted its first package of climate and energy measures in 2008. Second, to increase the renewable energy and improvements in energy efficiency.[7] The studies suggests that CO_2-emissions, fuel consumption and socio-economic costs can be reduced by expanding district heating, while at the same time investing in energy savings in the building mass as well as increased district heating network efficiency.[8] Meanwhile, the social sciences seldom face energy problems[9]. Even more seldom do the social sciences analyze questions related with the participation of community in former soviet countries as well as socialist countries.

Energy efficiency in buildings should not be considered in isolation but should be optimized by taking into account efficiency in energy supply, notably by expanding District Heating and Cooling. This can only be achieved through a holistic approach to energy system addressing potential savings at the transformation and distribution level.[10]

2. ENERGY RISK AS A CONSEQUENCE OF MODERNITY

Humanity is able to create and produce faster than it can understand the consequences of its creation.[11] Constant risk is not the result of individual thoughts or intentions; it is formed by social processes.[12] Understanding that the problems of risk are embedded in society itself and that it is impossible to deal with them just

[6] Ecoheetcool, *Possibilities with more district heating in Europe*, Work package 4, A Europe Heat and Power Initiative, Final Report, Brussels (2006) // available at www.ecoheatcool.org; Ecoheetcool, *European Heat Market*, Work package 1, A Europe Heat and Power Initiative, Final Report, Brussels (2006) // available at www.ecoheatcool.org; Ecoheetcool, *Guidelines for assessing the efficiency of district heating and cooling systems*, Work package 3, A Europe Heat and Power Initiative, Final Report, Brussels (2006) // available at www.ecoheatcool.org.

[7] *A policy framework for climate and energy in the period from 2020 to 2030*, Communication from the commission to the European Parliament, the Council, the European economic and social committee and the committee of the regions, Brussels, 22.1.2014 COM(2014) 15 final // http://ec.europa.eu/energy/doc/2030/com_2014_15_en.pdf.

[8] Bernd Möller and Henrik Lund, "Conversion of individual natural gas to district heating: Geographical studies of supply costs and consequences for the Danish energy system," *Applied Energy* Vol. 87, No. 6 (June 2010).

[9] According to B. K. Sovacool, „Social science related disciplines, methods, concepts, and topics remain underutilized, and perhaps underappreciated, in contemporary energy studies research". In *Energy Research & Social Science* he „provide a content analysis of 4444 research articles involving 9549 authors and 90,079 references (from a smaller subsample) published in three leading energy journals from 1999 to 2013. Within this vast sample, only 19.6 percent of authors reported training in any social science discipline, and less than 0.3 percent of authors reported disciplinary affiliations in areas such as history, psychology, anthropology, and communication studies. Only 12.6 percent of articles utilized qualitative methods and less than 5 percent of citations were to social science and humanities journals" (Sovacool Benjamin K. 2014. What are we doing here? Analyzing fifteen years of energy scholarship and proposing a social science research agenda *Energy Research & Social Science.* Volume 1, March, Pages 1–29).

[10] *2030 Framework Incomplete Without Heating and Cooling*, *supra* note 1.

[11] Ulrich Beck, *Risk Society: Towards a New Modernity*, *supra* note 2; Zygmunt Bauman, *Vartojamas gyvenimas (Consuming life)* (Vilnius: Apostrofa), 2011.

[12] Ulrich Beck, "The Politics of Risk Society," *supra* note 2.

by using objectivistic and technical evaluation and assessment, was the initial stimulus for the sociology of risk society to appear.[13]

Pervading all areas the "risk" has become a marker of the current period which society does not dare to evaluate as unambiguously optimistic.[14] On the contrary—many areas of today's pervasive uncertainty and insecurity are precisely the consequences of modernization processes.[15] Many physical threats to the energy system have been developed by organizations seeking to monitor the progress.

The rise of the risk society is unplanned. The risk arises automatically, running autonomic modernization processes that are deaf and blind to the effects and dangers.[16] Along with the modernization the risk arises as its invisible and autonomous side. Risk is always a matter of judgment and at the same time it implies judgments. With the appearance of ideas of risk control and consequences, governance risk became a political matter. Decision-making transforms countless threats to calculated risks. So the idea of "risk society" is associated with modernization and rational attempts to control the calculation of the risk and threats in both private and public domains.[17]

For a long time it was thought that precise calculation of risk allows for control of the effects of risk (hence, reducing it). However, the change of risk nature in the age of globalization destroys both the calculation of risk and hedging against it, and thus what any state guarantees. This indicates the ambiguous status of ordinary people, because they are dependent on the decision-makers and risk management implications. However, no single individuals or specific groups of people (politicians, businessmen, scientists, etc.) know exactly and understand completely the full scale of the risk, or how to assess its potential environmental, economic, political and social consequences. It is impossible to accurately calculate the probability of risk and to define compensation or to assign responsibility. Risks are formed and exist as an independent phenomenon, pervading both time and geography contexts, so it is hard to handle and predict. Risk describes the concept of a specific intermediate state between security and destruction, in which perception determines thinking and actions.[18]

[13] Vylius Leonavičius, Dainius Genys, "Energetinio saugumo sociologija ir rizikos visuomenė," *Filosofija. Sociologija* Vol. 22, No. 4 (2011).
[14] Sheila Jasanoff, "The Songlines of Risk," *Environmental Politics* Vol. 9, No. 2 (1999).
[15] Ulrich Beck, "The Politics of Risk Society," *supra* note 2; Anthony Giddens, *Modernity and Self-Identity (*London: Polity Press, 1991); Zygmunt Bauman, *Globalizacija. Pasekmės žmogui* (Vilnius: Apostrofa, 2007).
[16] Anthony Elliott, "Beck's sociology of risk: a critical assessment," *Sociology Vol.* 36 No. 2 (2002 May).
[17] Ulrich Beck, "The Politics of Risk Society," *supra* note 2: 30.
[18] Ulrich Beck, "Living in the World Risk Society," *Economy and Society* Vol. 35, No. 3 (2006) 329-345.

The development of an energy sector is a huge source of modern risk. According to U. Beck,[19] the energy system is to be understood as an inevitable part of the development of industrial society, which itself (from an objectivist point of view) produces threats (e.g., nuclear disaster, environmental disasters, etc.). Energy security and energy system development risk is related not only with the need to provide cheap and clean energy, but the energy system is embedded in risk (e.g. the risk of a nuclear accident, the threat of ecological disaster, etc.) that touches every human being. Risk society is global. It pierces various social, political and economic structures. The danger of modernization is like a boomerang, returning without recognizing any social classes, economic systems or states' power. Regardless of prestige of social status, no one can avoid risk situations. The danger arises not only to human health, but also property, profits and even political legitimacy.

The Baltic energy system is one of the largest and at the same time the most problematic areas of the economy; its risks and threats in one way or another touch every country.[20] Among the many risks and threats generated by the energy system, one of the most important and directly related to most of the population is the problem of DH. DH is a typical example of risk society when during modernization (Soviet) project it was expected that DH would help achieve progress and create some wealth for society, but due to the changes in economic, political and social conditions DH emerged as a severe threat to the already poor enough Baltic societies.

3. RISK CREATION IN SOCIALIST COUNTRIES

When trying to understand the specific situation of Soviet society in this context, two concepts should be distinguished: *Soviet modernization* and *Soviet period modernization*.[21] The analytical separation serves to explain better the after-effects of the Soviet period society's modernization. Like all modern industrial societies, the Soviet state inevitably had to develop in parallel various closely related sectors of society (industrialization, urbanization, bureaucratization, public education and health care systems, etc.). The energy subsystem had to be one of basic areas of State Development.[22] Typologically, they were the necessary conditions of all modern industrial societies' development, so we can talk about

[19] Ulrich Beck, "The Politics of Risk Society," *supra* note 2.
[20] Juozas Augutis, Ričardas Krikštolaitis, Dainius Genys, Sigita Pečiulytė, Giedrius Česnakas, and Linas Martišauskas, eds. *Lietuvos energetinis saugumas. Metinė apžvalga. 2012–2013* (Kaunas: VDU, 2014).
[21] Vylius Leonavičius, "Sovietinė modernizacija: socialinės sistemos ir socialinio veikėjo sąveika," *Darbai ir dienos* 49 (2008).
[22] Now it seems ironic that in Soviet times, slogans with V. I. Lenin's words were publicly hung probably firmly believing that "communism is the communist government plus the electrification of the whole country".

Western-type society's modernization, which took place during the Soviet period. However, the Soviet modernization was framed by totalitarian politics and ideology and most of modernization's negative aspects (environmental, bureaucratic, economic, energy, etc.) as well as the aspects of risk society there were more expressed than in Western democratic industrial societies,[23] where it was possible to discuss the risks produced by modernization. The risk of a complex and centralized energy system becomes particularly high when it is developed inefficiently and improperly due to political and ideological factors and flawed economic logic.

3.1. THE SOVIET POLICY OF HOMOGENIZATION

Soviet industrialization was accompanied by the dominance of its totalitarian regime, which provided the Soviet bureaucracy not only urbanization, but also the social, cultural and political control role. One of the distinctive features of Soviet modernization is particularly strong homogenization of society (conducted throughout the former Soviet Union). The intention of homogenized society is not exceptional, because exceptional becomes a homogenization level. For example, homogenization in democratic societies is limited due to social stratification, while an abnormally high level of social homogenization was reached in Soviet Union by means of social engineering (e.g., expropriation of property, the building of classless society, mass urbanization, collectivization, total employment).

The social order of Soviet modernization was based on national ownership of capital goods, one-party governance system and the totalitarian regime. As a result, the freedom of the individual there was heavily restricted (the individuals were largely unable to defend their rights), and the development of individualism, which was a specific feature of Western societies, was stifled.

Total dependence on bureaucratic authorities had a negative effect on the development of social networks and mutual trust, and limited the process of society's autonomy and individuality. Bureaucratic system strengthening was focused on the undermining of the importance of direct interaction between individuals. In other words, the strengthening of relationship regulation by the Soviet system inevitably weakened the society's social integration, enhanced the atomization of individuals, as well as anonymity and a sense of alienation among the individuals and between the state and society.

The weaker society's independence was, the greater individuals' economic and politic dependence on the system was, thus diminishing the importance of the role

[23] Eg. the Chernobyl disaster was considered to be a specific symbol of the Soviet modernization.

of an individual and reducing society's possibilities to solve problems independently. We could say that the features of modern society, which became important in the period of late modernity, were diluted.[24] The authorities controlled almost all (housing) development aspects[25] – from the design, construction, distribution and ending with renovation and maintenance. It was one of the main reasons why so many districts with prevailing utilities of centralized communication were constructed. The imposed paternalistic relationship between the government and society fostered society's dependence on government decisions and created an unusual feeling of alienation (it especially became apparent after the transition from a planned to a market economy) from private property and in particular with common areas, which have been treated ambiguously to this day. The absence of private property did not allow the formation of a tradition of conduct towards private property.

3.2. THE PLANNED ECONOMY

Unlike in the capitalist systems, where excess production of society goes to power subjects from economic organizations, in a socialist system the excess production of society was stolen by power subjects of the state apparatus. While capitalism is oriented toward profit-maximizing, socialism is oriented toward power-maximizing.[26]

The entire soviet economy was thus moved by vertical administrative decisions, between the planning institutions and the ministries of execution, and between the ministries and the production units.[27] As a result, the price structure of the energy sector had no objective relation to the real costs of most goods production.[28] Keeping in mind that the ultimate purpose of the Soviet system was military power—it mobilized all forces in order to achieve this goal—both the housing and the supply of services were treated as secondary matters.

[24] Anthony Giddens, *supra* note 14; Zygmunt Bauman, *Liquid Modernity* (London: Polity Press, 2000).
[25] In the twilight of the Soviet era, the Soviet system started to experience difficulties to meet rapidly growing accommodation demand, therefore, after communal apartments (owned by the state, which also ensures the maintenance and renovation functions) came cooperative apartments development idea (apartments belonged to a community, which itself took care of the maintenance and renovation functions).
[26] Manuel Castells, *The Information Age: Economy, Society and Culture*, Volume III, End of Millennium (2nd edition) (Wiley-Blackwell, 2010), p. 8.
[27] *Ibid*.; "At the core of such central planning, two institutions shaped the Soviet economy. The first was Gosplan, or State Board for Planning, which established the goals for the whole economy in five-year periods, then proceeded to calculate implementation measures for each product, for each production unit, and for the whole country, year by year, in order to assign output targets and supply quotas to each unit in industry <..>. Among other details, "prices" for about 200000 products were centrally set each year. <...> Gossnab (State Board for Materials and Equipment Supply), which was controlling all suplies for every transaction in the whole country" (Manuel Castells, *supra* note 25, p. 15-16).
[28] Stefan Buzar, *Energy Poverty in Eastern Europe* (Ashgate Publishing Limited, 2007), p. 20.

Since the main focus and resources were directed to the development of military power, people's public social welfare needed to be content with residual resources, while a sudden urbanization forced a search for the cheapest solutions. Energy network infrastructure became the main component, allowing the development of mass urbanization policy.

As already mentioned above, in the planned economy a number of essential goods, such as housing, heating, health, were treated as "necessities" that must be available to everyone. The soviet system's inability to meet the housing needs led to a rapid and continuous, but poor quality housing construction[29]. The poor quality of multi-apartment houses[30] and a potential DH problem were programmed due to the constant lack of minimum funding for the field of consumption, the prevailing work ethic and the specific planned economy accounting system (which basically placed obstacles in the path of productivity-enhancing technologies and management development).[31]

The socialist model perceived energy resources such as fuel and energy as inexhaustible, and thought that high fuel and energy consumption indicators illustrated the volume of modernization. The economic planners' task was to provide the public with the necessary supply of resources and the highest possible economic goals. The usage of state services was heavily subsidized. Low household prices were sustained by relatively high prices charged to industry, the revenues of which were used to cross-subsidize household prices.[32]

The implicit subsidies were motivated by the ideological principles of the political system, which saw social welfare as an integral part of the economic structure. Social policy in Communist societies was incorporated in all aspects of the economy, having also taken the form of price and industrial policy.[33] All this helped to keep all badly constructed and energy-inefficient districts of multi-apartment houses. Abundant energy resources and the planned economy (based on the principles of the subsidy) determined that in those days the functioning of DH did not become a problem, and the society did not suffer due to the discomfort.

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[29] Jurgis Vanagas, *Miesto teorija (City theory)* (Vilniaus dailės akademijos leidykla, 2003); *Lietuvos centralizuoto šilumos tiekimo apžvalga 1990-2007* (Lietuvos šilumos tiekėjų asociacija, 2008).
[30] Socialist residential buildings suffered from above-average heat losses due to a combination of factors, including: "low thermal efficiency standards, a historical lack of attention to quality in construction materials and practices, and inadequate levels of maintenance. Common problems would include leaky windows and doors, uneven heat supply within buildings, as well as missing or insufficient basement and roof insulation. In many prefabricated panel buildings, the rubber moulding and cement mortar between panels quickly deteriorated, permitting air and rain to pass through" (Stefan Buzar, *supra* note 28).
[31] For example, "the efficiency was measured by the total value of the production, which covered the cost of production. An implementation plan was determined by comparing the total value of production in different years. Meanwhile, no-one was concerned about reducing production costs through more recent technologies and better management when the total value of the production system was unable to use these improvements to create greater value added" (Manuel Castells, *supra* note 26).
[32] Stefan Buzar, *supra* note 28.
[33] *Ibid*.

4. RISK TRANSFORMATION (THE ORIGINS OF CONTEMPORARY RISK)

Densely populated urban districts, which developed during the Soviet mass urbanization period, are symbols not only of urbanization, but also of Soviet modernization. The districts of multi-apartment houses with centralized communications, which are common to many socialist cities, reflected the Soviet ideology—as if housing uniformity confirmed the existence of homogenized classless society.

At that time, massive multi-apartment housing policy was popular elsewhere, but after several years, the majority of Western countries noticed that the trend had failed. Construction was oriented to the middle class, which did not consider it to be attractive. Meanwhile, Soviet society did not have a choice and had to be satisfied with the product offered by the state. Eventually Western countries quite successfully renovated and adapted unsuccessfully urbanized districts according to society's expectations. Meanwhile, in Soviet countries (including the Baltic States) such construction was more intensive, wider and longer. Therefore, the problem is also more complex.

A significant part of the current Baltic population inherited a product of the Soviet "welfare state" and technologies' symbiosis or, in other words, the product of Soviet modernization. The table below helps to better grasp the whole picture of the DH problem in the Baltic States, i.e., the approximate number of total amount of multi-apartment houses in each country, the percentage of the population imprisoned in DH trap, the DH burden to each country's budget (estimating DH sales annual turnover) as well as single household (estimating heating price).

Table 1. DH burden in numbers by country[34]

	Share of multi-apartment houses (units)	Percentage of citizens served by District Heating (%)	Annual District Heat sales turnover 2011 (EUR mln)	Average District Heating price (EUR/GJ) 2009	Average District Heating price (EUR/GJ) 2011
Lithuania	~34 000	67%	488.12	17.6	18.6
Latvia	~39 000	64%	383.50	13.89	15.35
Estonia	~24 000	54%	352.9	12.25	15.42

[34] The statistics were collected from different sources: http://www.euroheat.org/Statistics-69.aspx (accessed January 15, 2014); http://www.atnaujinkbusta.lt/index.php/lt/p/atnaujink-busta/apie-programa/statistika (accessed January 15, 2014); http://www.been-online.org/Latvia.406.0.html?&L=06468 (accessed January 15, 2014); http://www.em.gov.lv/ (accessed January 15, 2014); http://www.ehr.ee/ (accessed January 15, 2014); http://www.been-online.org/Estonia.407.0.html?&L=11 (accessed January 15, 2014).

The main distinctive feature of post-socialist societies is their institutional and cultural heritage, which have deeply marked social and economic specifics.[35] After regaining independence and the changes of political, economic and social situation, the politicians of the Baltic States have to reform and adapt the energy sector to innovative standards and free people from the district heating trap.

Each Baltic country in official documents[36] indicates that one of the key tools to neutralized negative DH consequences is heat saving and efficiency improvement. The renovation of multi-apartment houses (modernization/renovation) is presented as a measure[37] to achieve this goal. Despite the relevance of the problem and ongoing public discussion, Lithuania, Latvia and Estonia solve this problem in different ways; but none of the countries have completely resolved it.

4.1. SOCIAL COHESION

The restoration of independence meant huge changes not only in the political and economic spheres, but also in the social sphere.

After independence, the forcibly homogenized society was quick to take on the forms of social stratification. Society divided into different, smaller or larger groups, depending on the income, new social roles, education, values and interests. Such a sudden change formed the newly born stratified society, and thus significantly reduced the latter's suggestibility opportunities. A system in which citizens had limited or no opportunity to influence government decisions, formed people who have no participation skills and did not even realize themselves as participants. Long-term occupation led to the development of conformist behavior

[35] Zenonas Norkus, *Kokia demokratija, koks kapitalizmas? (What democracy, what capitalism?)* (Vilniaus universiteto leidykla, 2008), p. 573.
[36] "Lithuanian Housing Strategy", "Programme for the Modernisation of Multi-family Buildings"; "Legislation for housing sector and refurbishment of the multi-family buildings in Latvia"; "The Estonian National Housing Development Plan for 2008-2013".
[37] In the Baltic countries, renovation aspect also has its own specificity: in most Western countries apartment maintenance is a systematic phenomenon, i.e., a wide range of routine repairs are carried out, or if necessary - overhauls. Renovation concept here is related to more or less usual process of apartment maintenance (e.g. to modernize 3-4% of the apartments per year is a common rational practice). Meanwhile, in the Baltic countries apartment maintenance was held carelessly, ineffectively or even did not take place (due to the Soviet-specificity). According to engineers, the building needs an overhaul about every 30 years of exploitation. The Baltic apartment average age is about 28-38 years (the number is debated; here it is mechanically calculated and intended for the sake of illustration). However, the technical condition is much worse because of that lack of proper maintenance. Thus, the renovation of multi-apartment houses in the Baltic countries is related to a full-scale building construct modernization, major overhaul of all engineering systems and building insulation. The main objectives of modernization are these- to renovate the heating systems in exploitable multi-apartment houses, to renovate and insulate roof constructions, to replace or renovate windows and exterior doors, remove the panel-joint defects and reduce the external wall thermal conductivity, to reduce up to 30 per cent thermal energy costs per unit of useful floor space (*Daugiabučių namų atnaujinimo (modernizavimo) programos monitoringas. (Multi-apartment House Renovation (Modernization) Program Monitoring)*, 2009).

towards the authorities and did not allow citizens to learn basic lessons of political participation. The society was not educated in such a way as to make it possible to question the decisions of government and to protect the public interest; the people were not taught to express their aspirations for the public through reasoned and open dialogue.[38] The emergence of private property and the need to care for it was a real challenge for a large part of society.

As regards the post-Soviet society's participation in solving DH problem, it is worth mentioning that a significant division into public and private interests was the reason why many people had double standards, influencing different activities in public and private spheres.

Each owner is interested in taking care of private property (i.e., in this case - private apartment), but not many owners feel responsible for maintenance of the multi-apartment house (i.e., in this case, DH). In the absence of a united, associated community, it is more difficult to find a compromise between the owners who are "responsible" for taking care of DH.[39] Even after two decades of independence, it is still possible to see the fairly widespread model of Soviet society integration tradition, where not all social groups are equally able to participate in the market economy. Some of them expect higher government assistance in the field of public life. The centralized communication infrastructure (including DH) is adapted to Soviet society, with the condition that centralized government has to take care of it.

After the changes of political, social and economic conditions and acceleration in social stratification, the society no longer fits into the housing infrastructure which was developed during the Soviet period. The government eventually became less centralized and is no longer able to fulfill the functions of the previous government. Society's tradition to entrust the government with social problem solving, the lack of personal skills to take care of private property and government shifting from one foot to the other while making real decisions on the DH problem, created the preconditions for raising the problem.

It is becoming clear why the government attempts to solve the DH problem (initiating renovation program) are unsuccessful.[40] The renovation of multi-

[38] Rasa Baločkaitė, *Viešojo diskurso raida Lietuvoje 1988-2002 m. ir jo sociologinė analizė socialinio konstravimo požiūriu (Public discourse development in Lithuania 1988-2002 and its sociological analysis from social constructivism point of view)* (KTU, 2004).

[39] Consequently, it led to a unique situation in Lithuania, where the municipality is obliged to apoint the administrator for multi-apartment houses (Ramūnas Gatautis, "Kaip išvengti baudžiavos šilumos ūkyje?" (How to avoid bondage in heating economy?) (2012) // http://www.ekonomika.lt/naujiena/kaip-isvengti-baudziavos-silumos-ukyje-22624.html (accessed December 12, 2013)).

[40] The goal of Lithuanian national housing renovation program is - to renovate 70 percent of multi-apartment houses (about 24,000), i.e annual renovation process should include at least 2400 buildings per year. However, despite the public and fierce debate on the advantages and availablity of this measure, the renovation program in the stage of 2005-2008 years involved only 720 homes, or 2.1 percent of all that had such opportunity (http://www.atnaujinkbusta.lt/index.php/lt/p/atnaujink-

apartment houses remains stalled, since typologically, the organization and implementation model is not appropriate. The expectations of autonomy and initiatives were imposed on a society that is rather passive and suffers from "habits" acquired during the Soviet period. The program requires organization of a society type (i.e., to get together in communities, to decide on the course and procedures of renovation, to gather a certain amount of private funds (or negotiate a loan with the banks), to apply to the state for financial support, to initiate the renovation process) that the society is not yet ready to become. Fairly modest indicators of the renovation project confirm that the parts of society which are hesitant to represent their own interests, find themselves in significantly weaker positions and complicated joint activities. Due to a lack of organization, they do not have the resources needed to represent their own interests, which remain unrealized.

The avoidance of responsibility, passivity and distrust undermines society's political and social support for the state to gather enough strength for a successful realization of renovation programs. It is obvious that without renovation project corrections resulting from the specificities of public organizations, it is difficult to expect the project to succeed. However, it is likely that regular activities for promoting social integration, fight against social exclusion and building up real social networking not only contributes to the success of the renovation program, but also helps to strengthen civil society.

4.2. MARKET ECONOMY

Today, most of the multi-apartment houses built during the Soviet era need to be renovated. Since much of the population has limited financial resources, the state is forced to share the burden of renovation and contribute to the financing of multi-apartment houses renovation. The market economy has helped stratify society quickly (particularly in terms of economic power) and it has had an impact on individual protection against the DH problem. Economically stronger members of society could afford to move to newly constructed homes (with innovative technologies), and even for the rest of the population living in their older homes the

busta/apie-programa/statistika (accessed November 25, 2013)). In Latvia, 811 multi-apartment houses were renovated during the period 2009-2011 (http://www.rea.riga.lv/en/files/REA_information_leaflet_nr_2.pdf (accessed November 25, 2013). In Estonia, it is difficult to calculate the exact number of renovated apartments, as some have done housing renovation self-financing. According to KredEx (which is a state policy implementation unit who implement development measures), in 2003-2008 KredEx supported renovation for a total of 3049 apartment buildings. Since 2009, when the direction was taken of the energy savings to support the complex renovation (roof and wall insulation, replacement of all windows, heating and ventilation system replacement or renovation), KredEx has issued concessionary interest rate loans for structural funds and allocated to support a total of 500 multi-apartment buildings (2009-2012) (www.kredex.ee (accessed November 25, 2013)).

DH problem is not so painful (due to higher income). Meanwhile, the DH problem has become extremely painful for low-income and poorly organized members of society who remained in the old multi-apartment houses.

Despite public and loud speeches about the need to deal with the DH problem, the Baltic States seem uncertain of support in addressing the DH problem. Evaluating the ongoing government policies on this issue, it can be said that they are choosing between the two support models—a liberal model (characterized by the principle of state non-intervention, individualistic wealth accumulation in the minimally constrained market,[41] thus shifting the DH decision problem onto the shoulders of the public) and a social democratic model (with greater state involvement and taking responsibility for the social welfare of society).[42]

Currently, state support is differentiated depending on the energy efficiency of renovation. The states provide 15% financial support for a renovation project if energy savings of 20% is reached. If this is not less than 40%, 30% of the contract work is compensated. Meanwhile, earlier, at least in Lithuania, the state support for the renovation could reach up to 50%. On the other hand, costly heating bills force the government of each country to seek measures for how to increase support for renovation.[43] Assessing the social and economic characteristics of the Baltic countries, it must be assumed that the larger and more effective state involvement in promoting a sense of responsibility of society could facilitate the renovation process and DH problem solution.

In the Soviet era, DH was a convenient system due to the low-cost energy resources and extensively applied policy of the public subsidization. Today, however, the situation is completely different. The Baltic countries do not have their own energy resources and, therefore, they are dependent on global energy prices. Lithuania, Latvia and Estonia have different heating production methods. In Lithuania and Estonia heat production is heavily dependent on natural gas; the only difference is that Lithuania pays more for natural gas import[44] than Estonia (though

[41] Gosta Esping-Andersen, *Three Worlds of Welfare Capitalism* (Polity Press, 1990).
[42] *Ibid*.
[43] Lithuania recently made an amendment increasing state support and more flexible requirements for organization of renovation. LR Seimas approved amendment of the Law on State Support, which ensures that the State undertakes to finance 40 percent of the total investment value of the projects (25 percent would be funded by the Climate Change Programme, 15 percent - from the State Support Fund. The remaining part would be funded by JESSICA fund (http://www.atnaujinkbusta.lt/index.php/lt/p/atnaujink-busta/valstybes-parama (accessed January 15, 2014)). This resulted in vivid growth of provided projects for renovation: according to recent statistics, during the latest stage of renovation program (when new model were already applied) 1682 multi-apartment houses were selected for renovation (http://atnaujinkbusta.lt/lt/nv/tyrimas (accessed January 16, 2014)). Estonia is also planning to increase state support for multi-apartment houses renovation on a basis of an energy-saving renovation model: the Estonian state will support the residents with 15%, 25% or 35% of the total project costs, grant (http://www.been-online.org/fileadmin/medias/downloads/beenetwork/news/2011/Newsletter-been.pdf (accessed January 15, 2014)); In Latvia, like in Lithuania and Estonia, negotiations are taking place on the greater international support implementation in the hope that it will increase state support.
[44] The dynamics of gas prices for household consumers (EUR/GJ):

the heating demand there is significantly lower). Meanwhile, the situation in Latvia is the best because the heat production is diversified and not dependent on expensive imported energy resources. The DH prices in the Baltic States are accentuated additionally due to the lowest rates of private incomes (compared with the EU average), which relatively increases the DH burden to society.[45]

CONCLUSIONS

The centralized communication system (including the DH) which was widely developed during the Soviet era guaranteed comfortable and affordable services at that time. However, an individual was pushed to the limited use of the situation: he did not formally take care of either the quality of service or the maintenance and renovation – the authorities did it for him. Informally, however, an individual had to find ways to overcome the effect of massive shortage. Only a few members of society had a *blat* and were able to claim it for extra or better-quality services, while the majority of society was forced to be content with the results of housing policy implemented by the government. Because of the implementation of a specific policy of housing and urbanization, individuals were thrown into a situation of dependency, while today, they are forced to escape from it individually on the basis of their own resources.

Soviet modernization destroyed individual behavior and responsibility (for your own material well-being) and did not allow forming the scenarios that are typical of new democratic societies. In this way, the possibility of independent behavior was eliminated. Switching from a planned economic system to market economy when the skills of independence and individualism become particularly relevant, the lack of the latter led to the situation where many of the inevitable renovation works were not done and were increasingly accumulating. The DH was developed to facilitate the life quality of people who live in multi-apartment houses. However, after the change in political, social and economic circumstances, it became a heavy burden for the most of the population.

	2005	2006	2007	2008	2009	2010	2011	2012	2013
Estonia	3,9235	3,9280	4,9902	7,3897	8,9926	7,7148	9,0700	10,9200	11,4400
Latvia	3,8489	4,5402	6,3513	8,2749	13,2097	7,9209	9,5891	11,1986	11,1389
Lithuania	4,5847	5,2864	5,9899	7,7517	9,9989	8,6206	9,9774	11,7064	13,8380

More detailed statistics could be found: http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&init=1&language=en&pcode=ten00113&plugin=1 (accessed January 17, 2014); http://www.euroheat.org/Statistics-69.aspx (accessed January 17, 2014).

[45] Orsolya Lelkes and Katrin Gasior, "Income Poverty and Social Exclusion in the EU," *Policy Brief* (2012) // http://www.euro.centre.org/data/1327061559_78123.pdf (accessed March 02, 2014). We can see the difference of DH burden throughout the countries when comparing average DH prices and gross median salary in different countries: Estonia 15.42 (DH price EUR/GJ) /– 491 (median salary, EUR), Latvia 15.35 /368, Lithuania 18.6/361, Finland 14.8/1891, Norway16 /3336.

Initially (in the Soviet era), its functionality was unquestionable. Even today, in more rational context, the efficiency of this model could be much better (e.g. in Germany or Scandinavia, the DH is recognized as common and useful). The problem of the Baltic States is the legacy of a specific constellation of technological, economic and social elements of Soviet infrastructure that appears in a specific and particularly precarious shape under conditions of liberal market capitalism in regard to energy security. Inability to take into consideration the social and economic aspects of this problem, as well as the processes of risk society resulting in adverse effects, transforms the DH function from a little risky into a serious hazard for many people.

The main reason why the negative effects of the DH cannot be neutralized and the renovation project remains stalled consists of two aspects: first, when making the DH decision, again, there was no account of a social aspect of society's stratification. Only one solution, which was fairly generalized and irrespective of people's well-being, was chosen: an operating model which requires active and independent decisions was imposed on enough passive and on government decisions highly dependent society, which in this case is not optimal. It should be noted that the current model of renovation process is being revised with the intention to provide it greater state support. Second, the switch from planned economy to market economy after the emergence of private property and energy prices has highlighted the losses resulting from the multi-apartment houses poor quality. Due to the state's inability to subsidize the DH, the weight of the burden has been felt by the poor of post-Soviet society.

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