Market Watch (vol. 2.0)

St. Petersburg region (Russia) urban cleantech sector

The survey is part of “Central Baltic Cleantech Clusters expanding to East of EU markets (CB2East)” project

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1. Background of the survey

This report is the volume 2.0 of the St. Petersburg Market Watch (volume 1.0. 2016). The work is part of *Central Baltic Cleantech Clusters expanding to East of EU markets (CB2East)* project. The project is co-financed by European Commission (Central Baltic Programme 2014–2020), The Ministry of Economic Affairs and Employment of Finland (TEM) and businesses involved in the project. The project has approximately 900 000 EUR budget. The project is implemented from 1 September 2015 to 31 August 2018. The CB2East project consortium involves three cluster organizations as partners – Finnish Water Forum, Green Net Finland and Cleantech Latvia.

The main objective of the CB2East project is to strengthen the Central Baltic Region's economic competitiveness by creating commercially targeted open innovation platforms between Latvia and Finland. The focus areas are in sustainable eco-efficiency and water expertise in North-West Russia and Central Asia.

The project combines the clusters' complementary competences with a potential to develop specialized solutions to the target market needs. These strategic platforms support transnational cluster intermediaries on their operational projects helping companies in their business development and fruitful commercialization of joint ideas internationally.

To provide market knowledge from both market areas, two separate market watch reports are compiled as a part of the project – one from St. Petersburg macro-region (North-West Russia) and one from Central Asia. This report covers St. Petersburg macro-region.

This report contains information gathered from local references and sources from the target market, presented mainly in Russian. Some information is based on discussions with key target groups in St. Petersburg and Finland. Individual companies' interest and information needs were discussed and identified in order to reach an understanding of what kind of information this market watch should contain.

The main objective of this survey is to provide updated, accurate and critical state-of-the-art information on St. Petersburg macro-region urban cleantech market. For this volume 2.0 the structure of the report is changed compared with the volume 1.0 (2016). The reason behind this is to open some information in more detail, especially those which were recognized as challenging to understand for persons not familiar with Russian local specialties. Updates on the context is mainly based on identified interests from Finnish and Latvian SMEs and understandings of a few companies already operating in the St. Petersburg/Russian market.

In this report the broadly and variously understood term "cleantech" is limited to topics that have been recognized as having business potential or interest from urbanized territories of St. Petersburg macro-region. In practice this means that this report will deal with issues related to "big city" such as built infrastructure focusing on housing and energy and infrastructure supply (or Russian ZHKH or in Russian «ЖКХ»), transport and social infrastructure, city's industrial sector, green economy and socially responsible entrepreneurship which has been recently growing etc. This report also includes some official statistics related to living in the city.

The analysis of the business possibilities and challenges in the near future, especially for SMEs from EU region, has been made based on the findings made in the CB2East project when analyzing the business offering from Finnish and Latvian SMEs and market state-of-the-art.

2. What is St. Petersburg as unit of Russia, composition of the City and the Government?

St. Petersburg is one of the 85 constituent units or Subjects of Russian Federation. It has a status of Federal City (in origin *Город Федерального значения*). Other Subjects of Russian Federation are: 2 Federal Cities (incl. capital Moscow), 9 "Kray", 22 "Respublika", 46 "Oblast", 4 "Avtonomny okrug" and 1 "Avtonomnaya oblast".

St. Petersburg is also administrative center of Northwestern Federal District (in origin *Се́веро-За́падный федера́льный о́круг*). Altogether in Russian Federation is 8 Federal Districts.

St. Petersburg – Federal City as Subject of Russian Federation and administrative center of Northwestern Federal District.

St. Petersburg – 18 city districts

St. Petersburg is formed by 18 administrative regional units or city districts. Each of them has individual decision making bodies. It is good to understand that these regional units are in some issues fairly self-driven and it might be difficult to implement decisions in the city-level. Heads of city districts and municipalities are part of decision-level structures of St. Petersburg City. Under St. Petersburg city district's jurisdiction are other smaller units, which are 81 municipal okrugs, 9 municipal towns (Kolpino, Krasnoye Selo, Kronstadt, Lomonosov, Pavlovsk, Petergof, Pushkin, Sestroretsk, Zelenogorsk) and 21 municipal settlements. For example, Pushkinsky District (situated in the South part of the City) comprises 2 municipal towns (Pavlovsk and Pushkin) and 3 municipal settlements (Alexandrovskaya, Shushary, and Tyarlevo).

Federal City of St. Petersburg: 18 city districts and under their jurisdiction 81 municipal okrugs, 9 municipal towns and 21 municipal settlements.

Composition of the Government in St. Petersburg in 2017

Composition of the Government is appoving the Governor of St. Petersburg. In May 2017 the Government consisted of 13 persons, including Governor, Vice-Head of Administration, Representative of the Governor in the Legislative Assembly, Chairman of the Committee on City beautification and the Chairman of the Committee of transport.

The Coordinating Council of local self-government

The structure under the Governor was created in December 2016. The main objective is to coordinate activities of the State Executive public authorities and local self-government in cases of conducting unified policy in the sphere of socio-economic development of St. Petersburg. The Coordinating Council consists of 18 Heads of city districts, 22 Heads of municipalities of St. Petersburg and the Chairmans of relevant Committies. The Chairman of the Coordinating Council is the Governor. The Vice-Chairmen are the Chairman of the Council of municipalities of St. Petersburg, the head of the municipal district «Finlandskiy» and the Vice-Governor Head of Administration of the Governor of St. Petersburg. The new structure does not include any member of the Legislative Assembly of St. Petersburg.

Joint plan of the Legislative Assembly of St. Petersburg and the Governor for 2017–2018

The joint plan of legislative work was signed by the Governor and the Chairman of the Legislative Assembly. The main objective was to improve the legislation framework to ensure economic growth, improve the business climate, attract more investments and to support SMEs. In addition to the economy, the legislative process focuses on the social sphere. For example the legislation on the protection, restoration and use of objects of cultural heritage, attraction of private investments in projects of restoration of monuments of regional significance.

The Legislative Assembly of St. Petersburg is adopting more than 100 laws in one parliamentary year.

Composition of Public chamber of St. Petersburg

One third of the members of the chamber were nominated by the Governor, another third by public organizations and one third by the Legislative Assembly.

Committee of territorial development – a new unit of executive public authorities of St. Petersburg.

The Committee was formed in accordance with the decree of St. Petersburg Government in August 2017. The Committee began operating in September 2017.

Housing and energy and infrastructure supply sector of St. Petersburg

Managing the housing stock and buildings connected infrastructure of St. Petersburg is under few Committees. Here some examples:

- Construction Committee – commissioning of properties, building permits, development of regional construction norms and regulations, etc.
- Housing Committee – building stock
- Committee on energy and infrastructure supply – energy generation, distribution and modernization

St. Petersburg's commissioning level of residential properties is around 3 million m^2 in a year. Over the last decade, the structure of houses being constructed has seriously changed in favor of small housing and, in particular, studios which share exceeds 23%. According to the Agency "Peterburgskaya Nedvizhimost", the housing formats most popular among tenants in St. Petersburg are one-bedroom apartments and studios. Their share in April 2017 accounted for 54.8%.

In St. Petersburg there are 18 districts with total amount of 22 961 multifamily buildings. The housing stock is in need of remarkable modernization investments. For example, it is estimated that getting the housing stock in a "proper condition" in St. Petersburg and Leningrad oblast, about 40 billion RUB investments are needed. (source: https://www.dp.ru/a/2016/02/24/Spasenie_ZHKH__koncessii, read 6.7.2017).

The Housing Committee has since 2008 resettled residents living in 40 000 communal apartments into newly built apartments, but there are still 76 000 apartments left (*Definition of the author of "communal apartment" is: apartment with ownership of "rooms" and all other parts of apartment such as kitchen, toilet and corridor are owned by the "community" inhabiting/owning the rooms*).

New form of registration certificate for multi-family buildings

GUP "GUION" has developed a new form of registration certificate for apartment buildings. The new registration certificate contains the actual specifications of non-residential premises in the house belonging to common premises. When ordering registration of an apartment house according to a new form St. Petersburg GUP "GUION" will conduct a survey, analyze and compare the information obtained in the study of data in the archive Department of the technical documentation and the information obtained from the Unified state register of real estate, Committee on property relations, Housing Committee and other sources. The obtained information can be used to determine the cost of maintaining common premises of the house.

Implementation of the agreement between the St. Petersburg City, trade unions and employers

The main objective of this agreement is to improve the quality of life of the citizens of St. Petersburg. According to this agreement the minimum wage in St. Petersburg in 2018 should be at the level of 17 000 RUB. As a part of the agreement is also commitment not to increase fares for public transport and contributions for capital refurbishment («capremont ») of multi-family buildings.

St. Petersburg strengthens ties with the business circles of China

Industrial and Commercial Bank of China has discussed the possibility of participation in the implementation of investment projects in St. Petersburg. China is the largest trading partner of St. Petersburg. The annual trade turnover exceeds 5 billion USD. Projects of creation of the satellite city "Yuzhny" (which is implemented by the UK "START development") and the Park of light industry "Novy Skorokhod" are under discussion. Shanghai Industrial Investment Company is a co-investor in a large-scale construction project of the multifunctional complex "Baltic pearl".

"Highpark ITMO"

The Government of Russia decided to build a campus for science and research in St. Petersburg national research university of information technologies, mechanics and optics. This campus is called "Highpark ITMO". It will be owned 100 % by the Federal government, but the financing scheme involves allocation of 53% from the Federal budget, 12% from the budget of St. Petersburg and 35 % of private investments. The volume of investments is estimated to be around 41 billion RUB. Highpark ITMO will be located in the Pushkin district of St. Petersburg, in the future satellite city Yuzhny. The campus area will be about 400 000 m^2. The campus's thematic focus will be related to information technology, photonics and quantum technologies, robotics and cyber-physical systems, biotechnology and smart materials. The innovation cluster of St. Petersburg called "Innovation city of science and technology" is developing this campus. http://www.obzor.leontief.ru/docs/counsil.pdf (read 8.1.2018)

3. Some numbers on socio-economical analytics

Employment rate in 2017

Employment rate average is 74 % (share of employed people in total population aged 15 to 72 years in Russia is on). The level of economic activity in in average 75 % (share of economically active population of the total population aged 15–72 years). (http://ktzn.gov.spb.ru/analiticheskaya-informaciya/).

Between January-September 2017 the greatest demand for employees was declared by the enterprises and organizations of such economic activities as cargo transportation and storage – 13.3% of all reported vacancies; processing industries – 12.8%, construction – 12.7%; wholesale and retail trade – 9.6%.

Demographic situation

The amount of St. Petersburg permanent inhabitants is 5 344 900 persons in 1.12.2017 (based on an estimation of Petrostat), which is 63 300 people (or 1.2%) more than in the beginning of 2017. The growth comes mainly from migration (91%). The rate of births in 2017 was 9.3% less than in 2016. The natural increase (= births- deaths) in 2017 was almost half less than in 2016. (http://petrostat.gks.ru/wps/wcm/connect/rosstat_ts/petrostat/resources/9e901880406832ceb618f7367ccd0f13/01dem_g.pdf, 28.1.2018)

The main share of the migration comes from other regions of Russia (+42 781 people or 74 % of all migrants). The rest is from CIS-countries with leading position of Kirgizstan in 2017 (+6919 people or 11% of all migrants or 45% of migrants from CIS-countries). (http://petrostat.gks.ru/wps/wcm/connect/rosstat_ts/petrostat/resources/d0dd4d004e39a3ff9da1bdba5f1db840/02migr_g.pdf, 30.1.2018)

Facts about consumption of electricity and water

St. Petersburg consumes more electricity than it produces. The difference is about 7 billion kWh (Leningradskaya oblast provides). Heat generation in St. Petersburg and Leningradskaya oblast in 2015 was about 70 million Gcal (in Russia, the unit of heat is typically Gcal and for that reason it is also used in this report. 1 Gcal = 1.163 kWh). St. Petersburg's main water resource is surface water – Neva river (97% of all demand,735 000 m^3/year). 3% comes from groundwater.

Industry sector in general

Processing industry covers 35 % of different sectors in the economy of St. Petersburg in 2014 (source Petrostat). Currently there are couple industrial parks under development in St. Petersburg region. One of them – the Industrial park Greenstate – is a private industrial park of Finnish construction company YIT.

According to the Industrial Council, St. Petersburg does not follow the path of the most modern cities who have removed industrial production away from

the urban regions and moved to the post-industrial development path. St. Petersburg carries out systematic work to strengthen the industrial potential. According to the Governor, in 2011–2012 three new industrial enterprises were launched in the City, in 2014 – 7, in 2015 – 11, in 2016 – 12. For 2017 the estimated number is already 20. In 2016, the industrial production level grew by 3.9% and in 2018 between January-April of the current year by 2.3%.

The industrial sector of St. Petersburg is providing employment for 348 200 citizens. One third of all public procurement of the St. Petersburg municipality comes from the local production.

New industry production started in 2017

The Finnish company Ensto moved their production of electrical heaters from Finland to St. Petersburg. (https://www.fontanka.ru/2017/09/26/092/, read 3.10.2017)

A company called Power machines and German company Linde Group have launched the production of spiral heat exchangers for liquefaction plants and natural gas processing. The production has been organized on the existing production facilities of Power machines. Linde is the technology provider, Power machines will provide the localization of equipment. Both companies own 50% from the joint venture. (source: www.i-marsh.ru, 31.5.2017)

The company called Stroyspetsmontazh has launched a plant for recycling of rubber products and other carbonaceous waste in the village called Metallostroy. The capacity of the plant is 5000 t/y. This is about 1/8 –1/10 of the total volume of this type of waste generated in St. Petersburg. The waste comes from the enterprises of St. Petersburg macro-region who are interested in recycling waste containing carbon. For example, the Stroyspetsmontazh's management has already signed contracts with the GUP St. Petersburg metro, JSC Nokian Tyres, JSC Sea Port of St. Petersburg and SPb GKU The motor depot of emergency medical aid. The investor is LLC Firm Transline. (www.konkretno.ru February 15, 2017).

The manufacturer of construction chemicals BASF has opened its second production line at the plant in St. Petersburg. The company will produce products for underground construction (mining and tunneling), in example alkali-free concrete setting accelerators. The second line of the factory in St. Petersburg is part of the active expansion of the local production. The first line was launched in 2016 and it produces superplasticizers and innovative additives based on esters of polyacrylics. (www.master-builders-solutions.basf.ru/ February 7, 2017).

The growth of the industrial production in 2017 is partly explained by additional production on St. Petersburg factories of Nissan, Hyundai and Toyota (growing is 2,4 times compared to 2016).

Financial statistics of St. Petersburg

St. Petersburg city's budget is surplus. In January–August 2017 the number of unprofitable enterprises in comparison with the same period of 2016 grew by 67 units or by 12.2%, the amount of the loss grew 1.8 times.

According to an official statistic of Petrostat, the salary level (the true income) in St. Petersburg in August 2017 has decreased by 11.8% (in Russia on average – grew by 0.9%). The average monthly salary in St. Petersburg is 51 571 RUB (August 2017), and in state level the average is 37140 RUB, which is 28% less. The gap between the highest salary (mining industry) and the lowest salary (hotels and restaurants) is 8,7 times (statistic from August 2017).

Transport infrastructure

In St. Petersburg there is ongoing activities on expanding of metro network. In budget plans of the City for 2018 is 5 new metro stations for operation in 2018.

Construction of the Eastern High-speed diameter road is under consideration of the Government of St. Petersburg. Agreements on intent with potential investors of the project are signed on SPIEF2017. It is planned that the route will start from the Western high-speed diameter and will proceed to the intersection of the Murmansk highway and ring road with total length of about 22 km.

Construction of new high-speed tramlines. Two lines of tramlines will be built in the south part of St. Petersburg. Project is planned to be implemented by Public (State)-Private-Partnership. The first line will start at Kupchino metro station and prolonged till residential district Slavyanka with total length of 21 km and investment of about 30 billion RUB. The second line will start at planned metro station Yuzhnaya and prolonged to the Kolpino with total length of 13,5 km and investment of about 20 billion RUB.

New express train from airport Pulkovo to railway station Vitebskyi and new rail line from Kupchino to Shushary, Slavyanka and further are approved by Amendments to the General plan of St. Petersburg.

The Legislative Assembly of St. Petersburg has approved amendments to the General plan from 2005 and the Governor has signed the document in July 2017.

Social infrastructure

The availability of social infrastructure is an urgent problem of the new developed areas. In St. Petersburg a construction company can be obligated to build social infrastructure (for free) as a part of main contract. For example, in Shushary the deficit of pre-school educational sector is 2200 seats, in educational institutions 3800 places and in health-caring institutions 1100 clients. Construction Vice-Governor recommends that developers in Shushary independently address social and transport challenges. (http://www.restate.ru/material/smolnyy-rekomenduet-zastroyshhikam-v-shusharah-samostoyatelno-reshat-socialnye-i-transportnye-65021.html).

Real estate market

Average price for m^2 in multi-family building in St. Petersburg is about 1300 € (source: http://petrostat.gks.ru/wps/wcm/connect/rosstat_ts/petrostat/resources/30fe6d804f639099ad6bad9b972d8349/04zil_g.pdf, read 13.7.2017). In 2017 the difference between prices of new apartments and apartments in existing buildings was almost the same.

The price ranges in RUB and EUR for different periods of time and types of apartments could be found from web-calculation tools of numerous real estate agencies. For example: https://www.restate.ru/graph/?id=1&sh=1&d=2&r1=1&o%5B%5D=2&curs%5B%5D=&curs%5B%5D=eur&period=60&relation=#gr1, (source used 1.2.2018)

Trade statistic

According to the statistics of Russian North-West Custom management authority (*Северо-Западное таможенное управление*) on 11.5.2017, the level of international trade during period January-March 2017 was 9.9 billion USD. Share of energy is 3.4 billion USD or about 67.5% of total volume. In import the biggest part is machines, equipment and transport vehicles with volume of 2.3 billion USD or 46,4%. (http://petrostat.gks.ru/wps/wcm/connect/rosstat_ts/petrostat/resources/6c4175804d2c0befba64bbf30c79bfa3/vad_g.pdf, read 13.7.2017).

The numbers from January-September 2017: external trade revenue 32 billion USD (export 15.4 or 48.2%, import – 16.6 or 51.8 %). Growth in relation to 2016: export 37%, import 9.6%. The trade level with Finland has increased from 2% and 45 million USD to 3.4% and 503 million USD. (source: http://petrostat.gks.ru/wps/wcm/connect/rosstat_ts/petrostat/resources/6c4175804d2c0befba64bbf30c79bfa3/vad_g.pdf, 30.1.2018).

China and Netherlands are the leaders in trade statistics of North-West Custom management authority with 13.4% and 12.9% shares from total volume. The balance between export and import in total has changed in 1–9/2017 in relation to 1–9/2016 from –3.8 billion USD to –1.1 billion.

4. Russian housing and energy and infrastructure sector – what's going on?

There are several reforms, development programmes, renewal and modernisation processes ongoing in the Russian "ZHKH" housing sector. These modernisations happen both in the state level (including for example legislation changes, new norms, reforms etc.) and in the management level of the houses (including for example modernisation of the infrastructure of water and energy supply, capital refurbishment programme of multi-family buildings).

Russian and St. Petersburg local administrative specialities in water and heat systems

Management of the district heating and water supply and sewage networks are under responsibility of Russian state-owned companies, which are typically established under the legal form of joint stock companies (OAO or ZAO), unitary enterprises (federal, regional or municipal) or state corporations. (https://en.wikipedia.org/wiki/State-owned_enterprises_of_Russia, read 11.7.2017).

A unitary enterprise (in Russian: *унитарное предприятие*) is a commercial organization that has no ownership rights to the assets used in their operations. This form is possible only for state and municipal enterprises, operating with state or municipal property respectively. The owners of the property of a unitary enterprise has no responsibility for its operation, and vice versa. The assets of unitary enterprises belong to the central government (in which case they are known as *federal state unitary enterprises*), a Russian region, or a municipality. A unitary enterprise holds assets under the right of economic management (for both state and municipal unitary enterprises) or operative management (for state unitary enterprises only), and that such assets may not be distributed among the participants, nor otherwise divided. A unitary enterprise is independent in economic issues and obliged only to give its profits to the state. Unitary enterprises would have no right to set up subsidiaries, but, with the owner's consent, can open branches and representation offices. There were 1 120 federal state unitary enterprises in Russia in January 2017.

In St. Petersburg the situation is the following : "Vodokanal" is the state unitary enterprise (hereafter – SUE or "GUP") with almost 100% of the water supply market. In heating, SUE/"GUP"and "TEK SPb" have half of the market, and the other half is divided between 3 other utilities.

What is the housing stock of St. Petersburg like? Buildings from six eras.

The housing stock of St. Petersburg of mass-construction period (starting from the 1950s) is described in the Market Watch volume 1.0. In this volume 2.0 the holistic complexity of the buildings/real estate properties of St. Petersburg are presented as simplified and structured as possible.

If one wants to divide the types very raptly, then St. Petersburg could be divided into 6 periods and types:

1. 1700s–1750s, baroque, historical centre, industrial facilities, palaces on the south coast;
2. 1750s–1850s classicism;
3. 1850–1920, modern, functionalism, period of capitalism, new type of housing type – "profit building" (Russian: *доходный дом*); St. Petersburg – capital of Russia;
4. 1920–1930s, "stalin" type in housing stock, development of new areas of the Leningrad;
5. 1950s–1992, own period in development of housing stock, era of "hrushevka" and "panel" buildings or "housing stock of soviet era";
6. starting from 2000s, new era in city development, new areas on the border of St. Petersburg and Leningradskaya oblast under development.

Transition from living in a space owned by the state to active ownership

Privatization of living space or apartments started in Russia in the 1990s after dissolution of the Soviet Union. The privatization process of occupied living space/apartment was available for free until 2017. Though there are some citizen groups in Russia still unwilling to do it. Some reasons for the reluctance are:

- The poor condition of the apartment. Before privatization, this is an issue of the owner or the municipality. After the privatization, it's completely on the shoulders of the new owner. Especially for those people who are in difficult economic situation, this is the main barrier.
- A few inhabitants or a family on a small and low-cost living space. Before privatization, they can apply for expanding of living facilities from the municipality. After privatization they will loose their chances to improve their living conditions.
- Pensioners and other low-income social groups, who are applying a support from the municipality for payments of municipal services (heating, electricity).

These have roots in Soviet economy or central planning. Under central planning, the state performed the allocation functions and prices were an accounting mechanism only. The rental fees for apartments were set very low to achieve social equity, yet housing was in extremely short supply.

Transferring process from planning economy of the State to market economy in housing sector is moving quite slowly in the housing sector. There are a few reasons for it. The first one is related to mindset issues of apartment/property owners. They are not very active in taking part in the process of decision-making. Formally the property owners are the only group who can and should make all decisions related to management, refurbishment and modernisation of the common properties of multi-family buildings. Even in those cases when some construction part will be modernized/changed in the frame of capital refurbishment programme.

Mindset of the most property/apartments owners is still far from using those rights that the Housing code give them and what the State wishes them to do. Investments into refurbishment is possible by utilizing different models including leasing, ESCO, loan etc. There is still a lack of understanding of the benefits of a life-cycle investments.

On the other hand, the apartment ownership is still not completely clear in Russia. For example, media is still presenting cases where the apartment owner is obligated to leave their "own" apartment, because a few ownerships ago there was illegal process of ownership changing (person/agency who sell the apartment was not the real owner).

Housing code – decisionmaking in building management

According to the Building and housing Code of Russian Federation, decision making on the matters of multi-family building management, operating, maintenance, refurbishment/repairing, etc. can be done only by a common meeting of apartment owners/residents with a majority of at least 2/3 votes (Housing Code of Russian Federation 2013, art. 46).

In order to reach higher number of participants in the meetings, an online participation has been lately permitted.

Challenges and solutions in the management and operation of multi-family buildings

The State is messaging to the apartment owners, that they should become responsible owners. The State is messaging to operators of the properties (managing companies (MC) and apartment owners associations (TSZH and ZHK)) that they are not useful intermediaries in collecting (for example heat and water) payments from the residents for the resource providers (RP). RPs often explain their restrictions to make investments into modernization of generation and distribution assets by bad payment discipline of MC/TSZH. MC/TSZH often explains missing payments to RPs by bad payment discipline of the residents. The owners then on the other hand often express dissatisfaction with quality of services of the MC. Then the State reacts and obligates MCs under certification. It also gives to self-regulated organization the right to change MC, if owners are not satisfied. If not enough, there are also problems of dishonesty of the ZHs and several cases where the protocols of the apartment owners' common meetings are fake. Chairman of the board of TSZH/ZHK are often blamed in using of common money in their own purposes but reporting them as used for planned refurbishment. The apartment owners often explain that they are

not willing to participate the common meeting due they don't feel like they are able to impact on the outcomes of the meeting. The State is reacting on those issues and states that fabricating a meeting minutes is illegal.

As a solution, the statement from Minstry, in January 2017 declared that:

- Regular cleaning and maintenance: (*общедомовые нужды – ОДН*) belongs to the responsibility of the operators of the properties.
- The residents of the building will make a contract directly with the resource providers (heat and water supply) and not through property operators, meaning that the invoice will be paid directly by the resident.
- The misbalance or overconsuming of communal resources will be payed not by inhabitants/owners, but by managing companies.
- Regional norms on maximal amount of light and heat consumption.

Minstroy suggested to exclude managing companies from the chain of payment for housing and energy and infrastructure supply. The main idea is that if inhabitants will pay to the utilities directly, then scheme of billing will be more transparent than on the market at this moment. (https://rg.ru/2017/01/10/reg-cfo/v-cfo-podderzhali-oplatu-zhkh-bez-upravliaiushchih-kompanij.html, 17.1.2017)

To continue the subject of the previous chapter, here is one point of view on the situation of a resource (such as heat and water) provider (RP). Prior to 1990s, the major part of tariffs of communal resources were covered by the State and the communal resources were foreseen as a social issue. The logic was that the State as the owner took care of them and inhabitants didn't need to pay any cost of them. Within the process of housing reforms in the end of 1990s a practice of tariff regulation was developed which made it possible to stop the donations but bring in mechanism restricting the tariffs' growth. The state-level regulative structures have in the past limited the investments into refurbishment, but now these limitations are decreased. (https://www.kommersant.ru/doc/3280817, read 6.7.2017)

"Capital refurbishment" of housing stock – what is it?

One of the actions of the State in wide housing reform is the so called programme of "capital refurbishment" (translation is made by the author, official translation does not exist) or in russian «капитальный ремонт». It is often misunderstood what it means, so let's start with the definition. The native word is "kapitalniy", whichmeans "main, most important, basis, root, durable, fundamental" (*главный, важнейший, основной, коренной, прочный, основательный*).

Every region has developed their own programmes. St. Petersburg's programme of capital refurbishment of multi-family buildings was developed in 2014 and will be running for the next 25 years. Every year the more detailed so called short-term programmes are developed. (Russian local specialties related to capital refurbishment of housing stock include

obligatory payments collected for the future refurbishment activities, which will be implemented in the frame of "Capital refurbishment of multifamily buildings programme". The issues related to the programme are described in vol. 1.0 of the report, chapter 7. The "Regional operator" is responsible for implementation of this programme. The volume of St. Petersburg short-term capital refurbishment programme in 2018 involves implementation of 2 500 activities with a total volume of 9 billion RUB. The activities include repairing of 260 facades, 517 roofs, replacement of 678 elevators, renovation of the heating systems, gas and electricity supply, repair of basements and foundations. The apartment owners' part of co-financing in 2017 is 3,2 billion RUB (or about 30% of all volume). According to Regional operator, the collection rate of the payments in 2017 was more than 90%.

What activities are included into the capital refurbishment or "CAPREMONT"?

Altogether 6 groups of activities – 3 on main constructive elements of building (roof, walls, basement) and 3 on the inside of the building (lift/elevator, basement space and engineering systems inside the building).

Technical issues linked into refurbishment of mass-type multi-family buildings

The different types of multi-family buildings of St. Petersburg were described widely in the previous version of the market watch. In this version only two of them will be described – type 137 and 606. This is because:

1. Both types are widely presented on the refurbishment market of St. Petersburg.
2. Technical condition of these types are quite good and they are not under risk of demolition.
3. The prices of the apartments in both types are higher than an average apartment.
4. Both types are designed by local developers and all pros and cons of the buildings are well known.

Companies interested in the refurbishment business can find more detailed information about Russian and St.Peterburg building types from the Russian document available at http://yadi.sk/d/lkNt0oxUAKtaW.

Concerning the local specialities the following topics are identified:

- Technical approach to thermal insulation in St. Petersburg is differing, for example, from Finland by using of aluminium folio for insulation of the attic.
- Modernisation of on-site building heating system: in St. Petersburg in the majority of the multifamily buildings on-site heating pipe are coming from the top of the buiding. There are some cases where one pipe system has been changed to two-pipe system.
- Modernisation of windows. Window is not the part of common property of the building. So, each owner decides if in need of renovation.
- Changing the heating energy source and on-site system. There are some installations of micro heat plant on diesel to the technical space on the top floor of the building.

5. Changes in Russian waste legislation since 2017 – impact on housing

New waste legislation in Russia came into force starting from 1.1.2017. It is supposed to create a more structured market. From 2017 waste that can be recycled is prohibited to be placed to a landfill. Ministry of Construction Industry, Housing and Utilities Sector of the Russian Federation adopted the «Guidelines for the calculation of regulated tariffs in the treatment of municipal solid waste (MSW) management" and approved the procedure and the order of collection, transportation, treatment, storage and disposal of MSW. Also the Ministry proposed some changes in waste legislation: to include MSW sorting into regional operator's costs list and to specify rules of payment of penalty for the negative impact on the environment. Federal Service for Nature Supervision adopted the methods of environmental fee calculation. The procedure of waste management licensing is adopted. The Government has adopted the list of wastes that cannot be landfilled and must be recycled. The following waste is prohibited at a landfill:

- ferrous and non-ferrous scrap and mercury containing equipment and products (since beginning of 2017)
- paper and cardboard waste, tires, thermoplastic, glass and glass product (since beginning of 2018)
- computers, electronic, optical and electrical equipment (since beginning of 2020).

Responsible party for waste management committee in St. Petersburg – Committee of well-being arrangement. St. Petersburg's territorial scheme of waste management has been developed by this committee and were ready for approval in spring 2017. St. Petersburg does not have free landplots for new landfills, so the City is negotiating with Leningradskaja oblastj on those issues. One of the main actors is St. Petersburg State Unitary Enterprise (SUE) «The waste treatment plant» (MPBO-2).

6. Centralized engineering infrastructure of St. Petersburg – heat and water networks

St. Petersburg has fairly large centralized heat supply network. The total length of the network is around 5000 km. Typically the network is a 2 pipes system. St. Petersburg has developed a plan for switching from existing open system of hot water supply to a closed one. Technical modernization of heat supply will include installation of measurement equipment of heat consumption inside the multifamily building, which is the first activities implemented in St. Petersburg on the consumer side. The main energy source of heat generation plants is natural gas. Heating companies in St. Petersburg are “SUEs”.

The wastewater disposal system is divided into wastewater disposal basins. Discharges of each basin are channeled to corresponding wastewater treatment plants. The wastewater disposal basins are further divided into wastewater disposal districts; their territories are limited by the catchment of big tunnel collectors. The St. Petersburg wastewater disposal system comprises: sewage networks – 8603 km, tunnel collectors – 270.7 km, sewage pumping stations (SPS) – 176, wastewater treatment plants of different capacity – 15, sludge incineration plants – 3, permanent snow-melting stations – 10, permanent technically equipped snow collection points – 6.

The most remarkable new construction of centralized water supply and sewerage is planned in the south part of the St. Petersburg on the border with Leningradskaya oblast for the so-called city-sputnik Yuzny.

7. Resource efficiency in housing and real estate management sectors

The author has divided the focus of resource efficiency of building properties on processes inside building/real estate properties themselves and technical infrastructure which connect those buildings.

Financing of modernization of engineering infrastructure – public private partnership on agenda. Focus on concession.

Modernization of engineering infrastructure such as heating and water networks demands remarkable amount of resources. According to the State strategy on development of housing and energy and infrastructure supply, the most part of networks, heating plants, "vodokanals" and CHPs, which are managed by MUE's and SUE's are planned to be transferred into private concessionaries by 2020. The representatives of the local public authorities – committees of St. Petersburg and Leningrad oblast – are targeting 80% of SUE's.

The State is also planning to develop other forms of collaboration with investors. Such forms are energy service contracts, bank loans and others. At this moment there are only few private investment projects in St. Petersburg and Leningrad oblast. The main investor is Gazprom and its structures. So, in the middle of 2000s Peterburgteploenergo (origin *"Петербургтеплоэнерго"*), daughter company of Gazprom, modernized heat plants in the four districts of St. Petersburg and invested more than 23 billion RUB. The company has got those objects/plants under long-term-lease and the city compensated the modernization costs from the city budget. Peterburgteploenergo is planning to participate into a few new concession projects on modernization of heating system of Leningrad oblast and invest about 18 billion RUB before 2019. (https://www.dp.ru/a/2016/02/24/Spasenie_ZHKH__koncessii, read 6.7.2017). Changes into Federal Law about concession (115-FZ) in 2017 have guaranteed profit of 5% for concession investments.

Financing of energy efficiency improvement in St. Petersburg City's properties

St. Petersburg's activities on energy saving and efficiency improvement in municipal sector are coordinated by the Energy Saving Centre (origin *СПбГБУ «Центр энергосбережения»*), see http://www.gbuce.ru/. This centre is acting under the supervision of Committee of energy and infrastructure supply. Investment projects are implemented by ESCO -financing. One of the actors on the market is the local company "Teplocom" (*"Теплоком"*). The projects include the same activities as in housing sector – lighting and heat distribution units. Estimated savings levels are 25% in heating and 55% in lighting. The average investments are 1–3 million RUB per building and payback time is 5–6 years. In 2016, Energy Efficiency Centre started to combine 10-30 objects into one tender to attract investors by bigger volume.

St. Petersburg has taken the first place in ranking Russian regions according to achievements on energy efficiency by Ministry of Energy (https://minenergo.gov.ru/node/9631, 10.11.2017). St. Petersburg has formed the first Russian

system of complex realization of state policy in energy saving and energy efficiency improvement. It also has achieved the best results in implementation of the following technologies: LED lights in 10% of City's properties; automated individual heat distribution units in 20% of city's properties. 39% of municipal buildings have class of energy efficiency higher than D (normal).

Financing of energy efficiency impovement of housing buildings in private ownership – public private partnership on agenda. Focus on ESCO.

Initiative from the State Government, which will allow ESCO (energy service company) agreements also for example residents who get income support from the city and for people who rent their apartments. This is expected to remarkably improve the economic effect of energy service contract in the housing sector and lower the risks of energy service companies.

Modernization and energy efficiency improvement of multi-family buildings in St. Petersburg are restricted mostly to modernization of lighting systems. Those projects in St. Petersburg are financed by energy service contracts (Russian version of "ESCO") and by Regional operator of capital refurbishment. A few "heating-ESCO" -projects have also been implemented. In those the main activities were modernization of inside building heat distribution system.

"FIRST St. Petersburg Energy Service Company" OOO (further "FIRST") was established and introduced to the market in 2015 as one of the most promising concepts in improving energy efficiency in Russia. The partners are NP "St. Petersburg Homeowners' Association" and the Norwegian investment company Green Energy One AS. Each partner owns 50% of the shares. The "FIRST" has implemented one heating ESCO with good results. Justified savings during two heating seasons are more than 20%. Company is attempting to develop PPP-ESCO with St. Petersburg city and other partners.

St. Petersburg's company INNOKOR has implemented "lighting-ESCO" in more than 4000 multi-family buildings of St. Petersburg and has also made installations of LED-lighting equipment with motion sensors as activities of capital refurbishment programme.

Cluster boom in Russia – St. Petersburg Cleantech cluster as platform for enhancing of cross-sectoral collaboration

SPb cleantech cluster (www.spbcleantechcluster.nethouse.ru/) was established in October 2014. The cluster is an international consortium which aims at developing the St. Petersburg housing sector and creating new collaboration and business models in the region. The main objective is to prepare and implement development projects. The cluster has been open from its start also to companies located outside St. Petersburg and Russia, meaning that it is an international network of businesses. Green Net Finland represents the cluster in Finland and holds the chairmanship every 3 years.

8. Tips and checklist related to housing real estate market

TIPS & CHECKLIST

1. Ownership history of the apartment, land plot and infrastructures. The register of objects in the city's ownership can be found here: http://portal.commim.spb.ru/objects/realty. Information about multi-family buildings can be found via web-site of Administration of St. Petersurg. http://gov.spb.ru/gov/otrasl/inspekcija/informacionnoe-soobshenie-o-gosudarstvennoj-informacionnoj-sisteme-zhi/.

2. Year of commissioning of the building. There are 3 main age-groups (explained before). Be specifically careful when dealing with buildings from the Soviet era.

3. Location of the building. Be specifically careful when dealing with building located close to the boarders between St. Petersburg and Leningrad oblast. Example from the south-east region – some buildings on the same streets are part of the Kolpino (means St. Petersburg) and some buildings are part of Leningrad oblast. It means a lot: starting from different payments for heating and water and finishing by location of social services (school, policlinic, etc.). Buildings forming one physical mass are in different subjects/administrative units of Russia.

4. Property management model. "ZH" group is cooperative and association mode. Means, that leader (more often – chairman of the council) is one of the inhabitants/owner of apartment. "ZH" – not-for-profit organization. Other option is management company (MC). The rating of management organizations of multi-family buildings can be found here: http://mingkh.ru/rating/sankt-peterburg/sankt-peterburg/.

5. Measurement of consumption of the resources. Quite rarely available at the moment, but would be good to have.

6. Technical condition of the building. Implemented activities of capital refurbishment? When are they planned if not done yet? The register can be found here: http://fkr-spb.ru/house.

9. Some tips from the author for interactions with Russians on environmental or ecological business issues

(Note that this list is based on personal opinion and intuition)

TIPS

1. Do not use the words "sustainable development", especially in industry sector context. It is understood in different way than in EU.
2. Do not talk about "cleantech". Concretize, explain context.
3. Do not stress "environment", "carbon footprint", if talking about ecological responsibility. Use the words "corporate responsibility". In Russia ecological issues are under this definition.
4. In Russia there is no such kind of company form as "socially responsible entrepreneurship". Such form does exist in Finland.
5. Russian "object" can mean complex of some units (for example group of buildings under one construction permission or natural territory with defined borders) and one unit as well.
6. Such hot topics for Finland as healthy buildings and building with moisture problems are not well-known in Russia.
7. Actions preventing climate change is not very valuable argument on business level.
8. Russian business is more industry oriented than "saving the world".
9. New working places are better argument than lower CO_2 -emissions.
10. "UN Sustainable Development Goals" or "green economy" is more acceptable expressions than "circular economy" or "cleantech".


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