



Webinar
26.11.2020



13:00 -15:00
(Finnish time)

Business models of Energy-as-a-service and technical solutions for energy efficiency improvement in block of flats buildings


CBC 2014-2020
SOUTH-EAST FINLAND - RUSSIA

Funded by the European Union,
the Russian Federation and
the Republic of Finland.



City of Helsinki

Moderator: Evilina Lutfi

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Cata3Pult
FINNISH RUSSIAN PPP
CATALYZING NEW GREEN BUSINESS



Cata3Pult – Finnish -Russian Public Private Partnership catalyzing new green business

- **DURATION:** June 2019- May 2022
- **CONSORTIUM:** City of Lappeenranta (Lead Partner), GNF, Metropolia UAS, St.Petersburg House Property Owners Association, KOSMOS LLC
- **FUNDING:** European Union, the Russian Federation, Republic of Finland and City of Helsinki (co-financing GNF)
- **PROJECT MAIN OBJECTIVE:** To attract businesses to invest, locate and operate in the Programme area. The Project will contribute to economic and environmental development, enhance regional business competitiveness through cross-border Public-Private cooperation and catalyze green solutions development in the Programme area.
- **In details: 3 topics (energy- and ecoefficiency in housing, green logistics & mobility, circular economy), 3 expert groups, 6 business cases, 3 student innovation projects, events, publications, study visits, communications and visibility**



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13:00 - 13:05 **Opening and participants introduction round**, *moderator, Evilina Lutfi, GNF*

13:05 - 13:20 **Overview on types of business models and existing practices - ESCO, EPC, Leasing and Concession Agreements - in Finland and Russia (St. Petersburg)**, *Evilina Lutfi, GNF*

13:20 - 13:35 **ESCO experience from St. Petersburg - modernisation of heating system**, *Nikolai Pitirimov, Non-commercial Partnership "House Property Owners Association"*

13:35 - 13:50 **New implementation model and tools for start-up of EPC projects**, *Liv Randi Lindseth, Managing director, LinKon AS*

13:50 - 14:05 **Heating energy saving solution from Finland - variable air volume ventilation system TOPAIR**, *Aki Pohjalainen, Entos Optimisäättö Oy*

14:05 - 14:20 **Energy storage solution from St. Petersburg**, *Alexandr Kiyanita, VOLTS Battery Ltd.*

14:35 - 14:50 **Energy savings and carbon footprints from different types and ages of buildings - study from St. Petersburg**, *Anna Prokofjeva, Environment office KOSMOS LLC*

Discussions and conclusion



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Some bases for this day's agenda:

Public/free/open document available on GNF's web-site:

<https://gnf.fi/wp-content/uploads/2020/05/St.-Petersburg-region-urban-cleantech-market-watch-vol.-3.0.pdf>





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Some bases for this day's agenda:

Any business starts from communication... Free online glossary:

<https://docs.google.com/spreadsheets/d/1wogg4cSq8kdAgxEQDViG8wjbFayxZOHCqE-xe-82rg0/edit#gid=0>

	A	B	C	D	E
1	English	Русский (alkuperäinen termi venäjäksi; original term in Russian)	Suomenнос	Arranging the vocabulary alphabetically with the chosen language / Sanasto aakkosjärjestykseen halutulla kielellä / Сортировка слов в алфавитном порядке в выбранной языковой версии	
2	achieve a balance of interests	достичь баланса интересов	saavutetaan etujen tasapaino	At the top of the chosen column (=language), right-click the letter of the column you want to sort by. In the opening menu, choose Sort sheet by A to Z or Sort sheet Z to A.	
3	added value	добавленная стоимость	lisäarvo	Klikkaa hiiren oikealla painikkeella ("kakkopainikkeella") sen kielen sarakeotsikon päältä, jonka mukaan haluat järjestää sanaston. Valitse avautuvasta valikosta Sivun lajittelujärjestys A→Ö (tai Ö→A)	
4	added value product	продукт добавленной стоимости	lisäarvotuote	Щелкните правой кнопкой мыши («дважды щелкните») заголовок столбца для языка, на котором вы хотите упорядочить словарь. В раскрывающемся меню выберите Порядок сортировки страниц от А до Я.	
5	advise	совет	neuvo		
6	advisor	советник	neuvonantaja		
7	affordable housing costs	доступные расходы на жилье	kohtuuhintaisia asumismenot		
8	agreement	соглашение	sopimus		
9	along with assessing the materials	наряду с оценкой материалов	materiaalien arvioinnin yhteydessä		
10	antropogenic emissions	антропогенные выбросы	ihmisen aiheuttamat päästöt		
11	apartment	квартира	huoneisto		
12	apartment ownership	квартирная собственность	omistusasunto		
13	assessment of technologies	оценка технологий	teknologioiden arviointi		
14	Association of Ecological Partnership (AsEP*)	Ассоциация Экологического Партнёрства (АсЭП)	Ekologisen kumppanuuden yhdistys		
15	autonomous	автономный	autonominen		
16	best available technologies (BAT)	лучшие доступные технологии	parhaat käytettävissä olevat teknologiat		
17	block of flats building	многоквартирный дом	asuinkerrostalo		
18	board of directors of housing company	совет директоров жилищной компании	taloyhtiön hallitus		
19	budgetary enterprise	бюджетные предприятия	julkisella budjetilla toimiva yritys		
20	Building and Housing Code of Russian Federation (BHC*)	Строительный и жилищный кодекс Российской Федерации	Venäjän federaation rakennus- ja asumiskoodi		
21	building management system	система управления зданием	rakennuksen hallintajärjestelmä		
22			rakennuksen passi/todistus		



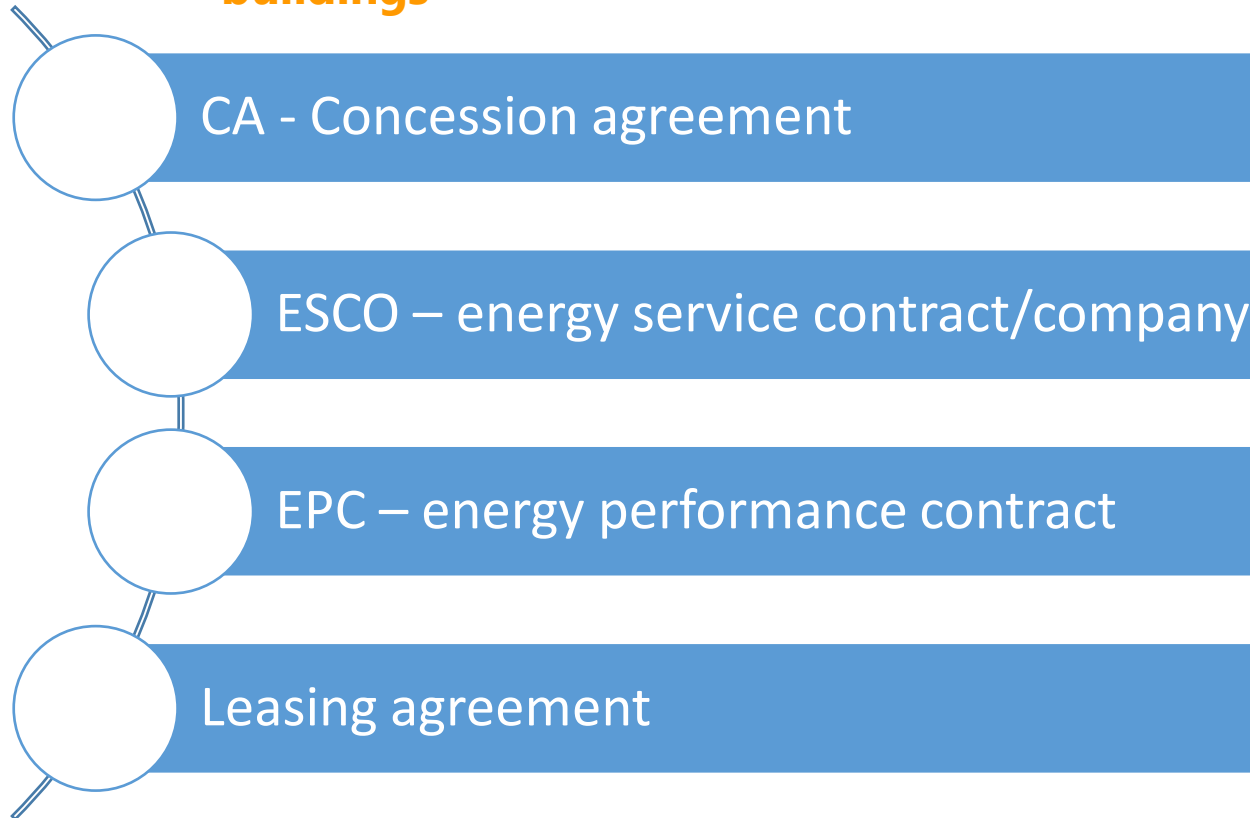


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EU-level: European Green Deal

Economic analysis	>	As part of the European Green Deal , the Commission proposed in September 2020 to raise the 2030 greenhouse gas emission reduction target, including emissions and removals, to at least 55% compared to 1990. It looked at the actions required across all sectors, including increased energy efficiency and renewable energy, and it starts the process of making detailed legislative proposals by June 2021 to implement and achieve the increased ambition.
Emissions Trading System (EU ETS)	>	
Effort Sharing: Member States' targets	>	
Innovation Fund	>	
Transport	>	
Protection of the ozone layer	>	This will enable the EU to move towards a climate-neutral economy and implement its commitments under the Paris Agreement by updating its Nationally Determined Contribution.
Fluorinated Greenhouse Gases	>	
Forests and Agriculture	>	The 2030 climate and energy framework includes EU-wide targets and policy objectives for the period from 2021 to 2030.
Adaptation to climate change	>	
Funding for climate action	>	
International action on climate change	>	
European Climate Change Programme	>	

2030 Climate and Energy Framework - existing ambition

Key targets for 2030:

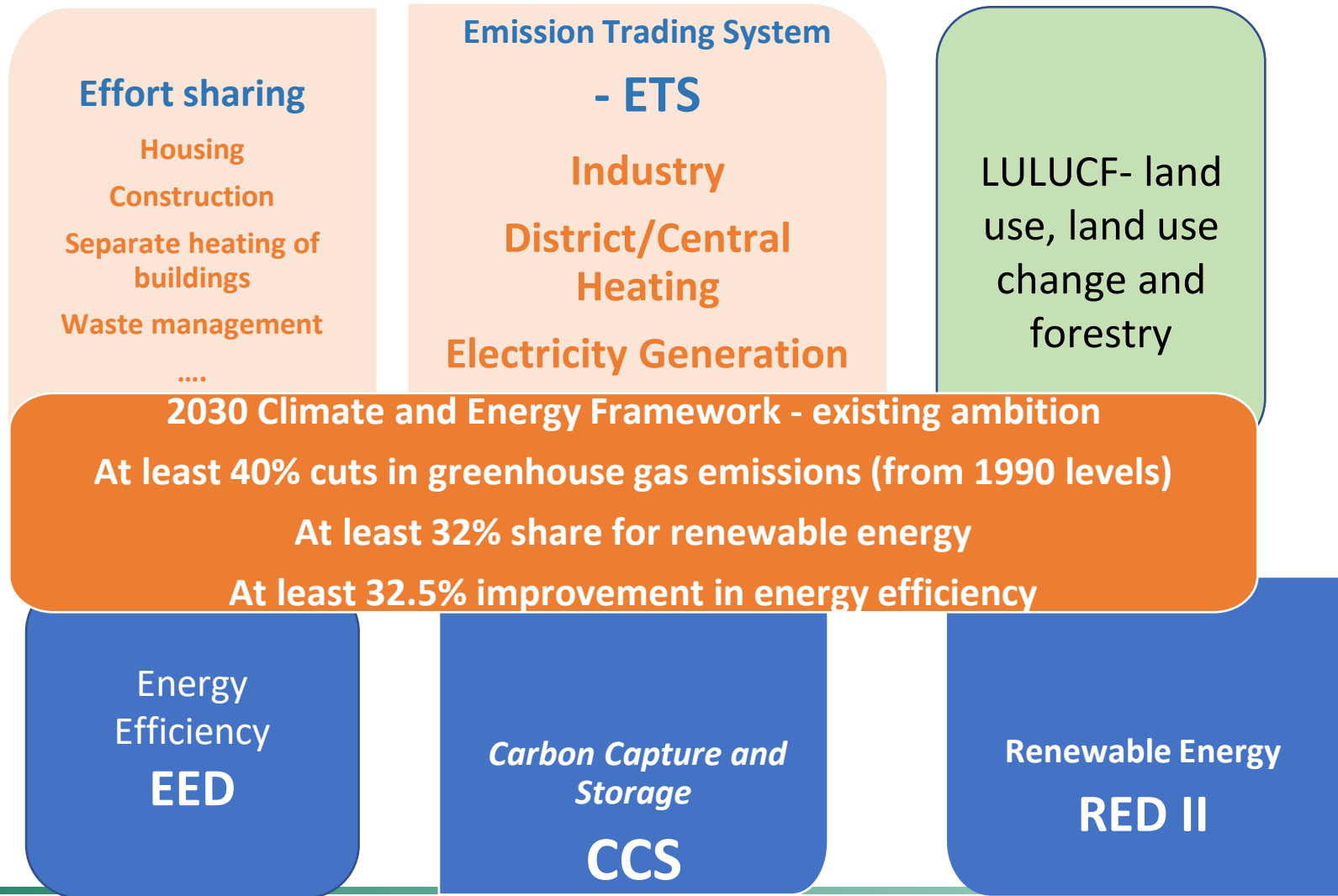
- At least 40% cuts in **greenhouse gas emissions** (from 1990 levels)
- At least 32% share for **renewable energy**.
- At least 32.5% improvement in **energy efficiency**.



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EU-level: European Green Deal





Start a 'renovation wave'

The construction, use and renovation of buildings require significant amounts of energy and resources, such as sand, gravel and cement.

Buildings account for **40%** of energy consumed



Source: Eurostat, Energy balances 2019 edition, final energy consumption in year 2017.

The current rates of renovation of public and private buildings should at least double



*SULPUn Lämpöpumppuwebinaari 2020, 26.11.2020;
Martin Forsén, President of the European Heat Pump Association EHPA*



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About Renovation wave...

Energy use in the European building sector



- 40% of all energy in Europe is used in buildings
- Energy use in buildings stands for approx 37% of all GHG-emissions
- 129 million space heaters in stock
- 72 million are old and inefficient (<60%)
- 25 years to replace the entire stock

SULPUn Lämpöpumppuwebinaari 2020, 26.11.2020;

Martin Forsén, President of the European Heat Pump Association EHPA



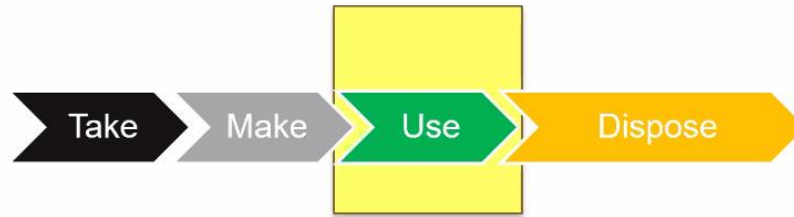
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New game...



Linear economy - Circular economy



*SULPUn Lämpöpumppuwebinaari 2020, 26.11.2020;
Martin Forsén, President of the European Heat Pump Association EHPA*



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New: Sector integration

What is it?

EU -level

Global Level

Sector integration strategy (July 2020)

- Renovation wave
- Electrification

In **buildings**, electrification is expected to play a central role, in particular through the roll-out of heat pumps for space heating and cooling. In the residential sector, the share of electricity in heating demand should grow to 40% by 2030 and to 50-70% by 2050; in the services sector, these shares are expected to be around 65% by 2030 and 80% by 2050²⁷. Large-scale heat pumps will play a relevant role in district heating and cooling. The most important barrier is the relatively higher level of taxes and levies applied to the electricity, and the lower levels of taxation for fossil fuels (oil, gas and coal) used in the heating sector, leading to lack of level playing field. Progress is also hampered by a number of other barriers, including unfit

- Energy flexibility – demand side management



IEA Energy Technology Perspectives Sept 2020

Heat pump outlook (sustainable scenario)

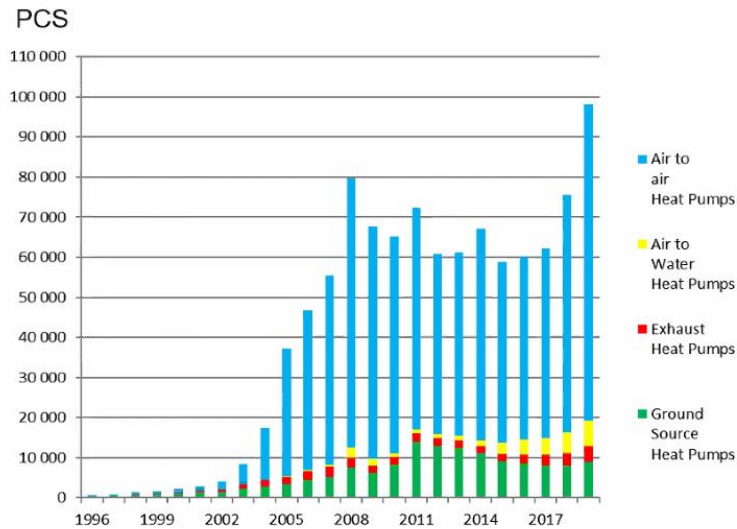
The proportion of heating equipment sales accounted for by heat pumps nearly triples by 2030 and continues to grow thereafter: heat pumps become the leading heating and cooling technology in buildings worldwide by 2040. For comparison, this means that the number of heat pumps sold in the residential sector over the next 20 years is roughly equivalent to the number of natural gas boilers sold in the same sector over the last 20 years. This sharp increase is driven by sales in high performing buildings, where heat pumps meet increasing space cooling and heating demand in many regions including China, North America and Europe Union. Heat pumps are primarily deployed in suburban and rural areas due to space and building constraints,



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Great opportunities for Finland



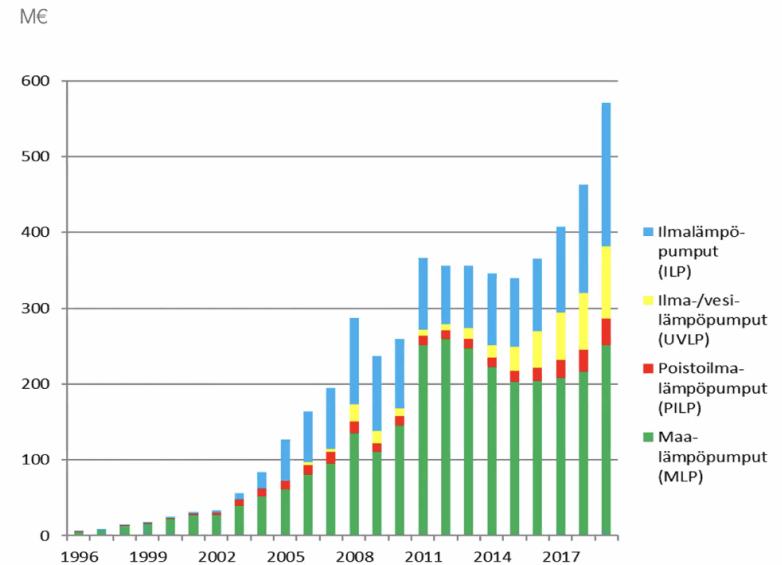
Required actions

- Monitor the Finish renovation wave
- Monitor national H&C-plan
- Prepare for demand side flexibility

Lämpöpumpuinvestoinnit

Loppukäyttäjät investoivat yli 600 M€ vuosittain

Alla olevasta kuvasta puuttuvat megawattiluokan kaukolämpö-, teollisuuden ja isojen kiinteistöjen lämpöpumput sekä oheistoimintojen kuten suunnitt rakennuttamisen, valvonnan, huollon liiketoiminnan eurot



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2020 1 milj. lp 12 TWh/a
 2030 2 milj. lp 22 TWh/a
 2040 SET-hanke 36 TWh/a

Potentiaali

Öljylämmityksen korvaaminen 3-4 TWh/a
 Kerrostalojen poistoilma 3-5 TWh/a
 Sähkön ja kaukolämmön korvaaminen / kaukolämmön tuottaminen >10 TWh/a
 Teollisuus >10 TWh/a
 Kysyntäjousto, varastot

Suomen lämmitysmarkkina ~80 TWh/a

Lämpöpumput: Huipputehon käyttöaika 1000 -5000 h/a, järjestelmän investointi 500-2 000 €/kW

- Investointeja 10 - 15 mrd€,
- Lämmitysenergian tuotantoa lisää 15 - 20 TWh/a, josta hukka- tai ympäristön lämpöä 60-80%
- Lämmitystehoa 10 000 MW
- Sähkötehoa 3-4 000 MW

Lämpöpumput lämmön ja sähkön siltateknologiana ratkaisu

- Uusiutuva energian hyödyntämiseen keskitetysti ja paikallisesti
- Hukkalämpöjen talteenottoon ja energian varastointiin
- Kulutusjoustoön ja energian varastointiin
- Polttamisesta luopumiseen

Lämpöpumput osallistuvat myös kulutusjoustoön, kunhan

- Teho on markkinahinnoiteltu
- Energia on markkinahinnoiteltu
- Energia-alan liiketoimintamallit kehittyvät
- Investoijille on ansaintalogiikat (kuluttajat, palveluyritykset, energiayhtiöt...)

Lämpöpumpputeknologia on jo kypsää, mutta kehittyy mm. korkeampiin tuottolämpötiloihin päin, tehokkaammaksi, sopeutuvammaksi

Ollaanko me hyviä?

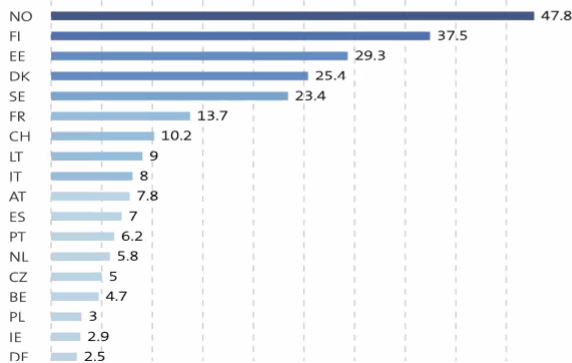


Figure 4-10: Heat pump sales 2019 per 1 000 households



St.Petersburg House Property Owners Association (HPOA) is proposing the following ZHK/ZHSK of block of flats buildings as Cata3Pult development cases:

1. House-hold cooperative (“ZHK”) No.4 (Kolpino, Tverskaya st., 45, St. Petersburg 196655);
2. House-hold construction and maintenance cooperative (“ZHSK”) Grafit - GSEC (Kolpino, Zavodskoy pr., 56, St. Petersburg 196657);
3. Home Unit Company (“TSZH”) “On the shore” . ТСЖ "На берегу" (residential compound of 5 buildings) (Kolpino, Anisimova st., 5, St. Petersburg 196655).



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Санкт-Петербурга

- Адмиралтейский район
- Василеостровский район
- Выборгский район
- Калининский район
- Кировский район
- Колпинский район
- Красногвардейский район
- Красносельский район
- Кронштадтский район
- Курортный район
- Московский район
- Невский район
- Петроградский район
- Петродворцовый район
- Приморский район
- Пушкинский район
- Фрунзенский район
- Центральный район

- Admiralteyski
- Vasileostrovski
- Viborgski
- Kalininski
- Kirovski
- Kolpinski rajon
- Krasnogvardeiski
- Krasnoselski
- Kronstadski
- Kurortni
- Moskovski
- Nevski
- Petrogradski
- Petrodvoretski
- Primorski
- Puškini
- Frunzenski
- Tsentralni

Venäjäksi
район/rajon
Suomenkielinen
vastine - **piiri**

Venäjänkielinen
originaali
latinankirjaimilla
Kolpinski rajon
Vs.
suomennos
Kolpinan piiri

Lähde: <https://www.gov.spb.ru/gov/terr/>



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Kiitos!

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