

TECHNOLOGICAL SOLUTION MAPPING

General overview

Company		Solution						
Name	Website	Category	Description	Energy saving potential	Reference 1 (if available)	Reference 2 (if available)	Reference 3 (if available)	Scheme/ picture/ onepager* (if available)
1	Paroc	http://www.paroc.ee/	Building envelope	Different insulation solutions for the building envelope		http://www.paroc.ee/campaign/paroc-innova-projekt		
2	Werrool	http://werrool.eu/en	Building envelope	Cellulose fibre wool has been used as an insulating material for more than 70 years. It was first used in North-America. In recent decades it has gained large popularity also in Europe. In Finland it is the most popular blown loose wool.	Cellulose fibre Werrool has excellent insulating properties, excelling most of competing insulating materials at the respective property. Therefore insulating with cellulose fibre wool is useful also in the long run and allows cutting down on heating bills.	http://werrool.eu/references-1/references		
3	Airobot	https://airobot.ee/en/	Ventilation	Heat recovery ventilation unit with the ability to make independent decisions	A+ energy labelling, heat recovery efficiency up to 95%			
4	Green Fuel Energy	http://www.gfe.ee/	Heating & cooling	Combined heat & power plant that works on woodchip				
5	PolarSol	http://www.polarsol.com/ee/	Heating & cooling	Energy saving heating & cooling systems. All systems include heat recovery	5 times less energy usage when compared to electric heating			
6	Roheine Mõte	http://www.heateco.eu/	Water					
7	Citytel	https://www.citytel.com/	Lighting	Next generation IoT technologies based easy-to-install and cost effective Smart Street Light Control	Together with modern LED luminaires achieving savings up to 85% of operational energy costs and up to 70% of maintenance costs	http://smartency.eu/media/tartu_1h_solu_tion_led_lights_with_smart_controllers.pdf		
8	Gridens Technologies	https://gridens.com/en/	Lighting	Intelligent energy efficient street lights	Luminaires equipped with Gridens Smartgrid control system can reduce energy consumption up to 90%	https://gridens.com/en/news/		
9	Green Fuel Energy	http://www.gfe.ee/	Electricity	Combined heat & power plant that works on woodchip				
10	Ubik Solutions	https://www.ubiksolutions.eu/	Electricity	Power optimizer & micro-inverter for solar panels	Up to 30% higher energy harvest			
11	Naps Solar	http://napsolar.ee/	Electricity	Production and selling of solar panels		http://napsolar.ee/tehtud-tood/		
12	Solarest	http://www.solarest.ee/	Electricity	Production and selling of solar panels		http://www.solarest.ee/tood-1		
13	Smartecon	http://smartecon.ee/	Electricity	Sales and installation of solar panels		https://smartecon.ee/tehtud-tood/		
14	Roofit solar	https://www.roofit.solar/	Electricity	Production and sales of photovoltaic metal roofs	Roofit solar photovoltaic roof reduces the installation and the material cost of construction, in addition, it improves the energy class of private houses by one letter. The studies show that as a result, the real estate market value increases by 4-8%. On top of that, our photovoltaic roofs reduce significantly the cost of ownership. Making the investment once, you can enjoy the production of electricity over decades. Our modules are designed to last, it is okay to walk on our roofs, also, they withstand to the snow, rain and hail. The metal parts of the module are covered with high quality weather resistant PUR layer.			
15	Energiapartner	http://energiapartner.ee/	Electricity	Solar energy solutions		http://energiapartner.ee/tehtud-tood/		
16	Energogen	http://energogen.ee/	Electricity	Solar energy solutions		http://energogen.ee/tehtud-tood/on-grid/	http://energogen.ee/tehtud-tood/off-grid/	
17	Golath wind	http://www.golath.ee/	Electricity	Production & sales of wind turbines				
18	Themo	https://themo.ee/en/	Building management system/ICT solution	Intelligent floor heating controller & electric radiator controller	By using spot prices and weather forecast, Themo knows when are the cheapest times to heat your floor/room.			
19	Fututec	http://www.fututec.com/	Building management system/ICT solution	Fututec develops information system for real estate management, which improves the collection, storing and analysis of data, and the efficiency of real estate management.				
20	Sympower	https://www.sympower.net/	Building management system/ICT solution	Demand response aggregator. Demand Response is a cleaner, cheaper and more efficient method for balancing the grid, where demand is adjusted to meet the grid needs. All around us there are appliances that can help resolve grid imbalances in a sustainable manner: heating systems, water boilers, ventilation systems, energy storage devices, and more. Sympower aggregates appliances in a pool via our cloud-based platform. The connected appliances are powered up or down when available, for short periods of time. Sympower unlocks additional value from existing systems and appliances, without affecting their functionality. Managing energy consumption through demand response reduces the need for fossil-fuel based balancing, accelerating the transition to a carbon-free future.				
21	Telia	https://www.telia.ee/	Building management system/ICT solution	The smart home system will be connected to the CumuloCity cloud platforms, which will be used to exchange data between various stakeholders (residents, housing associations, city of Tartu, University of Tartu, Tartu Regional Energy Agency), devices and platforms. This data will be the basis of empowering the consumers, leading to better decision-making and more energy-efficient behavior. Good data will also help service providers to make better investments and improvements in their value offers.	Benefits: Monitoring and adjusting energy consumption Improved data availability and new business opportunities Increased comfort and control over the indoor climate Behavioral change related to consuming energy Increased energy efficiency and reduced energy bills Greater transparency of urban processes Better management of service providers	http://smartency.eu/media/tartu_1h_solu_tion_smart_home_solu_tion.pdf		
22	Hoiame Kokku Grupp	https://hoiamekokku.ee/	Other	Engineering company providing full analysis of building heating, ventilation, electricity, lighting and water usage together with full solution offers for improvements		https://hoiamekokku.ee/tehtud/		
23	TREA	http://trea.ee/en/	Other	Tartu Region Energy Agency could be interesting for E4B, because they are responsible for piloting the retrofitting of housing in Tartu for the SmartEnCity project		http://smartency.eu/media/tartu_1h_solu_tion_retrofitting_e4b_page.pdf		
24	Bakeri	http://bakeri.ee/	Other	Full solutions for building's energy production, heating and management.				
25	SmartVent	https://www.smartvent.ee/ENG/	Ventilation	Building machine learning indoor climate automation to create healthy and energy-efficient buildings.	Using schedule based HVAC automation means 10-50% higher energy costs than using demand-based indoor climate control.			400 people breathing better air Three upcoming pilot projects. 6 pilot projects by June 2018
26	Sol Navitas	www.solnavitas.eu http://miljonitita.ee/boggnade/igabala-romokare-minskar-klimataverkan/	Solar, ventilation, heat	We provide natural fresh air into living quarters with the help of solar energy. Indoor climate is one of the main factors of the building, because people spend 70% of their time indoors. So it's very important			Tartu + Tallinn	
27	Dunderdon		Building management system/ICT solution	DiYCon - full-automatic building regulation (holistic perspective).	can reduce energy supplements by up to 35 percent.			
28	JS Concept / JS ventilation	www.jsconcept.com	Ventilation	Installation free ventilation and cooling fan: JS Ventilation's new draft free cooling ceiling operates with lower air temperatures than Cool ceiling: traditional ventilation systems. This provides an ideal opportunity for better use of natural ventilation. Based on the "Cool Ceiling" product, this project develops a ceiling with hybrid cooling and ventilation.				
29	Lendager group	https://lendager.com/en/	Building envelope	upcycle concrete floor, upcycle cladding, upcycle bricks, upcycle concrete walls				
30	Vitani	http://vitani.ee/vitani-building-control/	Building management system/ICT solution	Vitani Building Control offers demand controlled solutions for many segments. The demand controlled system adapts to the behavior of the users and ventilation and heat control works together				
31	Lightcare	http://lightcare.eu/	Lighting	Full Dynamic Circadian Lighting is custom-designed for the healthcare sector, with input from a broad cooperation of users and researchers in the field. The concept is based on the purpose, of creating healthier light in nursing homes and the healthcare sector				

62	Bravida Norge (avd. Hamar)	www.bravida.no	Electricity	We are becoming increasingly dependent on electricity - at the same time it is becoming increasingly important to keep power consumption to a minimum. So why not think one step further when you're going to look over the electrical installations? We like to be in the process early - then we can help you create solutions that are cost effective, more reliable and better for the environment.	5 % energy saving for electrical heating per reduced degree celcius				
63	Bravida Norge (avd. Hamar)	www.bravida.no	Lighting	There is a wide range of energy efficient lighting based on fluorescent lamps and LEDs. These bulbs use significantly less energy than traditional incandescent lamps and halogen bulbs. LEDs and light bulbs also have a significantly longer life. Lumen indicates how much light a bulb provides, and Watt indicates how much power it uses. The energy efficiency of a bulb is indicated in Lumen / W. T5 fluorescent tubes have around 100 lumen / watt, while new LED systems can be delivered with higher	20-30 % energy saving for lighting				
64	Elmontasje Hamar AS	www.elmontasje.no	Building management system/ICT solution	Smårhouse is a housing that has installed control systems (CT) for light, heat, ventilation and other technical solutions. The control system is controlled by a control panel or on the wall, remote control, or via the internet or smartphone. With a few keystrokes you can, for example, control lighting, heat and sun protection, even when you're not home. There are both wireless systems and systems where the signals go by cable. Wireless systems make it easy to install in existing homes, while wired is best suited for those who want to build new or completely renovated homes. High competence and long experience with public buildings and housing with different types of management systems means that at Elmontasje Hamar we have gained expertise and can work towards all types of management systems. We have close and good cooperation with our suppliers, which is very important in order to solve the customer's wishes quickly and efficiently.	3-6 % energy saving of the involved technical equipment. (BCT)				
65	Elmontasje Hamar AS	www.elmontasje.no	Lighting	There is a wide range of energy efficient lighting based on fluorescent lamps and LEDs. These bulbs use significantly less energy than traditional incandescent lamps and halogen bulbs. LEDs and light bulbs also have a significantly longer life. Lumen indicates how much light a bulb provides, and Watt indicates how much power it uses. The energy efficiency of a bulb is indicated in Lumen / W. T5 fluorescent tubes have around 100 lumen / watt, while new LED systems can be delivered with higher performance. When installing new lighting, it would be advisable to assess a control system for the light. A motion sensor can easily control the light on, for example, bath and toilet. Many lamps and fixtures can be delivered with a built-in motion sensor. There are also management systems that utilize daylight by dimming the brightness and thus saving energy.	20-30 % energy saving for lighting				
66	Østerdalen Byggservice	www.osterdalenbygg.no	Building envelope	Østerdalen Byggservice Assists with the construction, renovation, modernization and maintenance of their buildings / homes for both businesses and private individuals. Involvement and change is an important job that places high demands on knowledge and professional competence.		Stor-Evdal Municipality			
67	Effektivt Energi (Hamar)	www.veffektivt.energi.no	Ventilation	v2 of E4 - Hands on will come in 2018 with the function of regulating ventilation based on logging of CO2 level, and forecasting of energy consumption for early warnings of operational challenges. Hands on uses a local weather station and artificial intelligence and learns what is normal consumption with changing weather.	20-40 % energy saving for ventilation (and often also effect savings)	Hedmark County	Hamar municipality, Arne Arnesen		
68	Caverion Norge AS (avd. Hamar)	www.caverion.no	Building management system/ICT solution	An Energy Performance Contracting (EPC) service, also known as Energy Saving Contract, is a long-term contract where various types of energy efficiency measures and investments are funded by energy cost savings. Enova has stated to prioritize support for energy-saving agreements like EPC because this type of contract guarantees improved energy efficiency. As your partner, Caverion can guarantee compliance with the budget throughout the agreement, which includes analysts, decisions, measures and follow-up internally.	25-45 % total energy reduction per year				
69	Caverion Norge AS (avd. Hamar)		Building management system/ICT solution	EOS - Energy monitoring system. With energy monitoring, we systematically map how your buildings use energy and where we can achieve savings. Through our online portal you have full overview at all time.	2-5 % energy saving				
70	Rototec AS	www.rototec.no	Heating & cooling	Rototec is Europe's largest supplier of geo thermal energy solutions and also in Hedmark area. Our services cover the entire process of energy systems - from consultation to installation. We offer a renewable alternative to district heating and oil. We supply ground-sourced heating and cooling to large properties and industrial plants. We also offer consultation in connection with geo-energy projects.	E.g. from electrical heating to geo heating energy saving will be between 50-60 % - in addition you will have considerable reduced CO2 emissions	Trysil municipality	Stor-Evdal municipality	Åmot municipality	
71	Trekompianet AS (Trysil)	www.trekompianet.com	Building envelope	Trekompianet can change windows or display new floors or ceilings and insulation. As Enova-approved energy consultant, we assist building owners with energy labeling and asset evaluation.	E.g. for windows and insulation - energy saving must be measured in reduced heat leakage in the covered area and will depend on quality, thickness etc.	Trysil Municipality			
72	Høyland Bygg AS (Hamar)	www.hoylandbygg.no	Building envelope	The building envelope is the building's first defense system from energy waste. Good insulation, high quality windows and a well insulated building envelope will reduce the heat loss to a minimum. Many buildings have a lot to gain from such measures.	E.g. for windows and insulation - energy saving must be measured in reduced heat leakage in the covered area and will depend on quality, thickness etc.				
73	Energima Eneverum AS (Eneverum)	www.energima.no	Ventilation	Energima focuses on energy-friendly technical solutions that create environmentally friendly buildings. We focus on all energy-intensive processes in heating, ventilation and cooling. In many buildings there are good opportunities for greatly reduced energy costs and we therefore assist the customers with energy analyses and the choice of profitable investments.	20-40 % energy saving for ventilation (and often also effect savings)				
74	Bryn Byggeklima AS	www.brynbk.no	Ventilation	Complete contractor within ventilation and indoor climate. Develops, designs, supplies, operates and maintains technical facilities in all types of private and public buildings.	20-40 % energy saving for ventilation (and often also effect savings)				
75	Martinsen & Sønn AS	www.maso.no	Electricity	A total supplier of electrical and low voltage services. Long experience from engineering, installation and construction management.	5 % energy saving for electrical heating per reduced degree celcius				
76	BT Rørsystem AS	www.btroersystem.no	Other	Offers market services for production and installation as well as general maintenance and repair in the areas of pipes, steel, mechanical, district heating and not least hydraulics.	Energy saving due to reduced heat loss by insulation of pipes and valves/vents.				
77	Eptec Energi AS	www.eptec.no	Heating & cooling	Eptec are one of Norway's leading contractors on cooling and heat pump technology with more than 20 years of experience. They offer consulting, engineering, engineering services, product and system deliveries and services to major constructions and industry. The solutions are built around cooling equipment, industrial heat pumps and heat exchangers.	30 - 70 % energy saving for heating				
78	Thermo Control AS	www.thermocontrol.no	Heating & cooling	Thermo Control AS is among the market's leading suppliers of cooling systems, heat pumps and air treatment units for the professional market.	30 - 70 % energy saving for heating				
79	Sauter Norge AS	www.sauter.no	Building management system/ICT solution	BMS/building automation system. Sauter Norge supplies complete BMS, including advanced space management in private and public buildings. This includes the design, commissioning / testing and integration of 3rd party products as well as delivery of distributors as well as subcontractors and field equipment.	3-6 % energy saving of the involved technical equipment.				
80	Cebyc AS	www.cebyc.no	Building management system/ICT solution	Energnet is a energy management software program (energy monitoring system) and a web based, real time carbon, energy and sustainability management system, built to meet the requirements of the GHG Protocol Corporate Standard, ISO 14064, ISO 50001, ISO 15927 and DIN EN 16247.	2-5 % energy saving				

118	Motiva / list of ESCO service providers in Finland	https://www.motiva.fi/arkkitehtuuripalvelut/energiatehokkuus-ja-esco-palvelut/escos-yritykset-suomessa	Other	List of ESCO service providers in Finland / ESCO-yritykset Suomessa Suomessa toimivia ESCO -ja energiatehokkuuspalveluja tarjoavia yrityksiä:	https://www.motiva.fi/arkkitehtuuripalvelut/energiatehokkuus-ja-esco-palvelut/escos-yritykset-suomessa			
119	Motiva / Valaistustieto	https://valaistustieto.fi/	Lighting	Intelligent light solutions	50-80 %			
120	Lähenergia / Finnish Clean Energy Association	https://www.laehenergia.org/en/about-finnish-clean-energy-association/	Heating & cooling	Powering Finland with clean energy Our goal is to make renewable energy use as easy as possible for firms as well as to help clean energy industry to grow. Our focus is on renewable energy, smart energy solutions and energy efficiency. Our members are clean energy companies, renewable energy sector associations, clean energy experts and promoters. Our activities include communications, organizing events and seminars, lobbying and carrying out development projects.		https://www.laehenergia.org/en/about-finnish-clean-energy-association/		
121	Finess Energy Oy	http://www.finess.fi/en/	Water	Finess Energy Oy is a Finnish energy efficiency and energy expert. We serve you in different stages of efficient use of energy. » Surveys » Streamlining » Device Solutions » Financing and subsidies » Follow-up				
122	Paroc	http://www.paroc.com/	Building envelope	PAROC Insulation and Other Products Acoustics Building Constructions HVAC and Process Industry, OEM Marine and Offshore Sandwich Panels	http://www.paroc.com/knownhow/energy-efficiency	http://www.paroc.com/knownhow/referencelists	http://www.paroc.com/tools-and-documents/akalua	
123	Isover Saint Gobain	https://www.isover.com/	Building envelope	A broad range of insulation solutions	https://www.isover.com/energy-efficiency-buildings	https://www.isover.com/references	https://www.isover.com/documents/taulukko	
124	Rockwool	https://www.rockwool.com/	Building envelope	stone wool insulation	https://www.rockwool.com/about/sustainability/	https://www.rockwool.com/research/7a=insulation-applications		
125	Hinku-forum companies (see attached hyperlink -> bottom of the page)	http://www.hinku-foorum.fi/fi/	Other	Big amount of companies towards Carbon free municipalities	http://www.hinku-foorum.fi/fi/			
126	AS Simone	www.aluksenergia.lv	Heating & cooling	Remote heat meter reading. Remote control of the heating system and diagnostics for errors	possible to reduce heat consumption ~10-15 %/month			
127	AS Simone	www.aluksenergia.lv	Water	Installation of solar panels for industrial buildings	high efficiency ~4 month/year to heat up hot water			
128	AS Simone	www.aluksenergia.lv	Building envelope	Retrofitting of buildings	~ 30% at least heat consumption			
129	AS Simone	www.aluksenergia.lv	Heating & cooling	Renovation of heating pipes and boiler system in Alūksne city	~20% heat loss from heat transfer by pipes, ~30% efficiency for heating boilers			
130	RB&B, ltd	http://www.ekovate.lv/h/	Building envelope	Natural insulation material from cellulose (ecowool), that is blown onto the surface: wood-fibre plances; and from hemp	ecowool: specific heat capacity (c) = 2000 J/kgK, (λ)=0,036 W/mK; wood-fibre: (c) = 2100 J/kgK, (λ)=0,053 W/mK; hemp: (c) = 2300 J/kgK, (λ)=0,04 W/mK			
131	Ecowool, ltd	http://www.ekoiso.com	Building envelope	Cellulose insulation material from recycled news papers	Cellulose insulation fibre (λ)=0,039 W/mK; of 15 cm is equivalent to: 18 cm of mineral wool, 46 cm of aerogel; 50 cm of wood logs, 35 cm of keramzīt, 146 cm of brick wall.			
132	SLO Latvia, ltd	www.slo.lv	Lighting	OSRAM SubstiTUBE*	<70 %, compared to day-light bulbs: <50 % using SubstiTUBE Advanced TB Connected with wireless brightness regulation			https://www.slo.lv/uzplodad/2015/aktualizacija/DOCT/Osram.minisite/Media/Brosuras/66_615_substitube_broschures_step1_17r_fi_lv.pdf
133	SLO Latvia, ltd	www.slo.lv	Lighting	PROLog lightning energy-audit sensor – logger and PROLog software from STEINEL Professional. PROLog fits the environmental characteristics and light amount in the space and calculates the wasted light and energy amount.	~60%			https://www.slo.lv/uzplodad/web/piedava/slo_piedava_nr1.pdf
134	SLO Latvia, ltd	www.slo.lv	Water	Solar collector water heating for hot water and partly for company's central building heating.	~400 m3 gas heated hot water a year replaced with sun heated water			https://www.slo.lv/uzplodad/web/piedava/slo_piedava_nr1.pdf
135	Riga Energy agency	www.rea.riga.lv	Lighting	Riga city street lightning renovation: transition lamps to LED with voltage regulation distant management	0,35 MWh on one lightning appliance (equal to 50 kg CO2).			http://www.rea.riga.lv/files/e-katalogs/E-katalogs_04_Programmejamu_LED_apsaugas_mes_kermenu_izmanatosana_pilsetas_apsaugasnosana_ar_spriguma_regulaciju_gataves_vadibu.pdf
136	Riga Energy agency	www.rea.riga.lv	Heating & cooling	Heat recovery from waste-water. Suitable for houses with big amount of waste water and big hot water consumption. Two devices „Menerga AquaCond” with heat exchangers with productivity 2,4 m3 /h hot water	Possibility to decrease heat energy consumption for hot water heating in multi-story building is 60%.			http://www.rea.riga.lv/files/e-katalogs/E-katalogs_13_Netekudenu_siltuma_atgusanas_no_daudzdzīvokļu_ekstera.pdf
137	Saint-Gobain Celniecības Produkts, ltd	www.isover.lv , www.gyaron.lv	Building envelope	ISOVER KL-33 is soft, un-faced glass wool board. It is non-organic and chemically neutral and it does not contain any corrosive agents. Main application is as thermal insulation of walls, ceilings and floors.	(λ)=0,036 W/mK; 10% more energy efficient than a standard mineral wool board.			https://www.isover.lv/irprodukti/isover-kl-33-33-30mm/
138	Latvenetgo	www.latvenetgo.lv	Electricity	Smart electricity meters in Latvia. Started a few years ago, haven't covered all the territory yet. Latvenetgo is the holder of the electrical system infrastructure in Latvia. Energy management with ICT in a public building. ICT technology consists of smart meters, automatic consumption data reading and transmitting, link to consumption regulatory devices, internet software for data analysis and long-term data storage. Another part is user behaviour change, based on the advised optimal consumption regimes from energy data analysis and remote management block parameter change.	In the first year of operation the pilot target group decreased their electricity consumption by 10-15% which is equal to <55kg CO2 per year per household.			http://www.rea.riga.lv/files/e-katalogs/E-katalogs_13_Energoefektivitates_uzlabosanas_ma_majamniecibas_zemtaiojot_viedas_tehnologijas.pdf
139	Riga Energy agency	www.rea.riga.lv	Building management system/ICT solution	Zehnder ComfoAir Q: local intelligent ventilation and recuperation device with heat and moisture recovery. Electric power <130 W.	>15% heat energy and <19 t CO2 reduction per year in the pilot building.			http://www.co2.lv/pridoksti/param/category/62280/item/327537
140	Eva sistēmas, ltd	www.co2.lv	Ventilation	LUNOS e ² decentralized recuperator - veru small and low electricity consumption (power density 0,05 W per m3 air).	Heat recovery <95%			http://www.kunoslatvia.lv/produkti/param/category/95290/item/355796/ https://www.majaelpo.lv/
141	LUNOS Latvia, ltd	http://www.kunoslatvia.lv	Ventilation	PRANA recuperator.	Heat recovery ~90,6%			
142	Majaelpo.lv	https://www.majaelpo.lv/	Ventilation	PRANA recuperator.	Heat recovery <91%			
143	"Herz Baltija"	www.herz-energie.lv/en/products/	Heating & cooling	In lot of objects in Gulbene municipality we have installed Herz wood pellet boilers "Herz Pelletstar (c60kW)", "Herz Firematic (>60kW)". These boilers are with a high degree of automation. As example, they have automated ash cleanings from heat exchanger and furnace, so boiler operator only once in a week should pour out the ash box. These boilers are with integrated electronic controller, so the boiler can control heating and DHW circuits. In operation these boilers are effective, safe and works without unnecessary repairs.	1) Herz wood pellet boilers are with high efficiency coefficient >90%. 2) Because of high degree of automation we are able to save not only energy, but time too. 3) With integrated circuit controller we can set the supply temperature reductions, for example - night, holidays etc. which gives a great impression on pellet consumption.			Gulbene municipality
144	SA "Telko"	www.telko.com	Building management system/ICT solution	In our buildings we use Telko product "MEDIQX" to remotely read the heat energy meters. In website we can see heat energy consumption, supply/return temperatures and flow so we are able to analyse and collect data.	1) We can monitor the systems and identify the errors or excessive energy consumption. 2) For example we can see if night or holiday supply temperature reduction is working, if not, than we are able to identify this problem, and change the settings in heat substitution's controller.			Gulbene municipality

145	SIA "Viridi Lux"	www.viridilux.lv	Ventilation	In our experience we have tried decentralized ventilation and recuperation ventilators - Twin Fresh COMFO. This device is excellent for local rooms to ensure decentralized ventilation.	1) This ventilation device ensure energy recovery. Because of recuperation outgoing warm air warms up intake outside air, so we don't need to spend other energy sources.	Guibene municipality		
146	Danfoss	http://heating.danfoss.com/prod/ucts/danfoss-link/#/	Building management system/ICT solution	Danfoss Link system is installed in school's hotel (dormitory). This system consist of central controller and 54 pcs. wireless radiator thermostats. From central panel, which is installed in administrators room, you can monitor and control temperature in every room. Also it is possible to set day/night or holidays mode.	Actually this system is like a pilot project and is working only 3 months, but it looks really perspective for energy efficiency gains. Because if you only decrease room temp. for about 1°C - it is possible to get around 5% saving of heat energy consumption. And this Danfoss Link system give us chance to control temperature in every room.	Guibene municipality		
147	Oknoplast	https://oknoplast.com.pl/	Building envelope	Oknoplast is a Polish multinational company established in 1994 in Krakow that manufactures PVC windows, window components, doors, aluminum products and roll-up blinds.	E.g. for windows and insulation - energy saving must be measured in reduced heat leakage in the covered area and will depend on quality, thickness etc.			
148	Fakro	http://www.fakro.pl/	Building envelope	Fakro is a private company established in Poland in 1991. The company is the most dynamic and fastest growing roof window manufacturer in the world. In the 25 years from a small family company, Fakro has developed into an international corporation achieving the position of vice leader in the global market of roof windows. Fakro manufactures windows, roof windows, accessories to window and loft stairs.	E.g. for windows and insulation - energy saving must be measured in reduced heat leakage in the covered area and will depend on quality, thickness etc.			
149	Rockwool	www.rockwool.pl	Building envelope	ROCKWOOL is a world leader in the production of rock mineral wool - a supplier of products, systems and solutions to improve the energy efficiency, acoustics and fire safety of buildings. ROCKWOOL manufactures rock mineral wool products serving as thermal, acoustic and fire insulation in housing and general construction, industrial and commercial buildings as well as technical installations.	Energy saving due to reduced heat loss			
150	Termoorganika	https://termoorganika.pl/	Building envelope	Termo Organika is Poland's largest manufacturer of expanded polystyrene boards. We are the only company to produce HOT DOTTED EXPANDED POLYSTYRENE - insulation material with high guaranteed quality, containing graphite composite which enhances the insulation properties of expanded	Energy saving due to reduced heat loss			
151	Viessmann	https://www.viessmann.pl/	Ventilation	The Vitocent 300-W apartment ventilation system works extremely energy efficient. The efficient heat exchanger uses up to 93 percent of the heat contained in the heat removal air to warm the incoming fresh air during the cold season. The integrated pre-heating electric heating element protects the Vitocent 300-W from freezing even at low outdoor temperatures. The remote control module enables convenient adjustment of the ventilation device from the living quarters.	20-40 % energy saving for ventilation (and often also effect savings)			
152	Pro-vent	http://www.pro-vent.pl/	Ventilation	We offer a range of 50 types of energy-saving recuperators supported by our dedicated automation, tailored to individual needs. CWK PROVENT-GEO achieves much better efficiency and bactericidal parameters than other GWC (gravel, tubular) available on the market.	20-40 % energy saving for ventilation (and often also effect savings)			
153	Wolf Technika Grzewcza Sp. z o.o.	http://wolf-polska.pl/	Ventilation	The CWL Excellent device is a ventilation unit with a heat recovery function with efficiency of 95%, maximum efficiency 180/300/400 m ³ and economical fans. Thanks to the use of a ventilation unit with heat recovery, we are able to reduce heating costs by up to 25%, with slightly higher expenses for electricity. The operating principle of the passives is extremely simple. The used air, cooled in the rooms passes through a cross plate heat exchanger in which heat is picked up and the air is removed outside. However, fresh air from the outside is cleaned and heated in the exchanger with previously received heat and directed to supply rooms.	20-40 % energy saving for ventilation (and often also effect savings)			
154	Viessmann	https://www.viessmann.pl/	Heating & cooling	Viessmann's extensive product range offers the right heat pump to suit every demand. Even at the planning stage, structural and geological conditions, as well as personal and individual preferences concerning heat demand can be taken into account. Running a heat pump with energy generated on site from a photovoltaic system is particularly environmentally friendly and very affordable. Viessmann heat pumps can be used in new build and modernization projects, they can be operated together with solar thermal systems and even combined with an existing oil or gas heating system to form a multi-media system. This allows every building and property owner to put their plans into action in the most efficient way possible	30 - 70 % energy saving for heating			
155	Vaillant	https://www.vaillant.pl/	Heating & cooling	Vaillant heat pumps are one of the most economical, effective and ecological heating devices currently available on the market. They do not emit any pollutants and they work effectively even at very low outside temperatures. They integrate the most modern technical solutions, they are manufactured in European Vaillant plants, and the elegant and fashionable housing fits perfectly into any interior. Vaillant heat pumps are solutions for both new and modernized buildings. The Vaillant offer includes: - heat pumps with the option of connecting 1 of 3 different, lower heat sources (drinking water, wastewater, air, glycol water); BioTHERM exclusive, flexCOMPACT exclusive - air-water type air pumps; aTHERM, aUSTOR - brine-water ground pumps; geoTHERM	30 - 70 % energy saving for heating			
156	Buderus	https://www.buderus.com/pl/pl/	Heating & cooling	Logatherm WPT heat pumps efficiently use free energy from the air to prepare hot water. The devices can work with other heating systems and their installation is extremely easy. In addition, they have the additional advantage - they can provide a pleasant coolness on hot days. There are four models to choose from, three of which with 200 and 250 liters capacity work to an air temperature of 5 °C, and the fourth model 270 even to -10 °C (interestingly, the Logatherm WPT automation of heat pumps allows them to be supplied with energy from photovoltaic).	30 - 70 % energy saving for heating			
157	Herz	http://www.herz.com.pl/	Water	The central position in the HERZ company's offer is occupied by thermostatic valves in all possible variants and shapes. Each of the offered products is covered by a 5-year warranty period, and continuous activities aimed at ensuring the highest quality of products offered were crowned in 1997 with the ISO 9001 quality assurance certificate. Herz is also one of the most important suppliers of green energy solutions. Already in 1983, the Herz Feuererzeugtechnik company was founded, one of the absolute precursors in the field of renewable energy sources. For over 30 years, Herz Energetechnik has been providing modern, efficient, cheap in operation and environmentally friendly heat sources. These are modern, maintenance-free biomass boilers and heat pumps.	insufficient data			
158	Danfoss	http://www.danfoss.pl/	Water	Danfoss engineers technologies that enable the world of tomorrow to do more with less. Danfoss was the original inventor of both the radiator thermostat and the automatic differential pressure controller. Today, we have been serving the needs of the heating industry for almost 80 years and are a market leader in automatic heating control technology. We meet the growing need for infrastructure, food supply, energy efficiency and climate-friendly	insufficient data			
159	AMS	http://www.amspolska.pl/pl/	Building management system/ICT solution	AMS Polska Sp. z o.o. is a dynamically developing company operating in the energy sector providing advanced power technologies since 1994. A team of professionals works here, for whom the most important is to maintain the highest quality standards in the provision of services, ensure seamless communication and instant service response, and maintain good relationships with clients and business	3-6 % energy saving of the involved technical equipment.			
160	Hager	http://www.hager.eu/	Electricity	Hager Group is a leading provider of solutions and services for electrical installations in residential, commercial and industrial buildings. Our range of solutions and services extends from energy distribution to cable management and from security systems to building automation.	3-6 % energy saving of the involved technical equipment.			
161	Legrand	http://www.legrand.pl/	Electricity	Legrand is the global specialist in electrical and digital building infrastructure and provides a range of several hundred thousand catalog items subdivided into 7 major product categories, each under the responsibility (product marketing, research and development, manufacturing) of one of 7 Strategic Business Units (SBU).	3-6 % energy saving of the involved technical equipment.			
162	Theusled	https://www.theusled.com/	Lighting	Although LED technology is the fastest developing technology in the lighting industry, the effective and economical lighting of industrial objects and high-ceiling warehouses is still a challenge that can be faced only by the best in the business. Our engineers prepare lighting designs for specific client requirements. We use very effective LED diodes and advanced automation systems. With them, we design optimum lighting systems for any factory production hall, warehouse, individual work stations or quality control departments.	20-30 % energy saving for lighting			