

# ANNUAL REPORT



WESTENERGY

# 2016





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# BRIEFLY ABOUT WESTENERGY

**Westenergy completes a functioning waste management system by combining municipal waste management and energy production.**

04

Westenergy owns and operates a modern Waste-to-Energy plant where energy in source-separated combustible waste is transformed into electricity and district heat. The plant is located in Mustasaari, near Vaasa and has been in operation since 2012.

Westenergy is owned by five municipal waste management companies, Botniarosk, Lakeuden Etappi, Millespakka, Stormossen and Vestia. Altogether some 50 municipalities form their operation area, and it is the combustible waste formed in this area that is delivered to the Westenergy Waste-to-Energy plant to be utilised as energy. Westenergy is operated

according to the absorption principle so no dividends are paid to the owners. Energy (in the form of steam) produced in the WtE plant is sold to the energy company Vaasan Sähkö, and the income from the steam covers a part of the costs of the company.

Over one third of district heating needed in Vaasa and Mustasaari is produced in the Westenergy WtE plant, and in the summertime, the production capacity of the plant is enough to cover the entire need. In addition, electricity produced in the plant covers the annual need of some 7 000 households.



2007  
2009  
2012  
2013  
2015  
2016

**Westenergy is founded**

**Environmental permit is granted  
Construction work begins**

**The plant stands ready for operation  
Production of electricity and district heat begins**

**The Energy Turn-about of Vaasa is selected as the Climate Act of the Year 2012**

**Quality, environmental and occupational health and safety certificates are granted to Westenergy**

**Preparative work for the flue gas scrubber is carried out  
Alteration of the furnace is carried out**



## WESTENERGY'S QUALITY, ENVIRONMENT & OCCUPATIONAL HEALTH AND SAFETY POLICY

Westenergy offers waste treatment service solely to its owner companies. We commit ourselves to continuously improve and develop the quality and cost efficiency of our operations.

We acknowledge the environmental aspects of our operations and risks related to the work and work environment. We use this knowledge to improve operations, to maintain the health and safety of the personnel and to prevent any negative effects on the environment.

We abide by the law and comply with authoritative regulations and contracts currently in force in all our operations.

We actively participate in developing the field of operation and in applying the best practices and technologies in our plant.

We require that all our co-operation partners comply with Westenergy's quality, environment and occupational health and safety policy.

Our improvements in quality, environment and occupational health and safety related issues are reported to our interest groups mainly in the annual report.







# MANAGING DIRECTOR OLLI ALHONIEMI:

**“Westenergy has determinedly developed its operations and is prepared for the future challenges.”**

06

Year 2016 was very important for Westenergy as many such things were done during the year that enable Westenergy to become a leading company in the waste-energy field in Europe. The boiler of the plant was modernised to match today's requirements for usability, and the investment started to pay off already at the end of the year as improved efficiency. The assessment of environmental effects and the application aiming at updating the environmental permit were also finalised during the year.

Significant alteration work was carried out during

the service stop in the spring. As the brickwork in the furnace had caused problems for several years, it was replaced with a more modern and durable material, Inconel coating. Additionally, the distribution of combustion air flow was improved. Thanks to these investments, the capacity of the boiler increased by 5 %, flue gases are cleaner than before and the amount of chemicals used to purify the flue gases has reduced. During the eight-week long service stop, there were over a hundred employees working at the site night and day, seven days a week.

YEAR 2016 WAS VERY IMPORTANT FOR WESTENERGY AS MANY SUCH THINGS WERE DONE DURING THE YEAR THAT ENABLE WESTENERGY TO BECOME A LEADING COMPANY IN THE WASTE-ENERGY FIELD IN EUROPE.

Work proceeded in time and as planned, and no accidents took place during the project. All I can say is good job from everyone!

The assessment of environmental effects was completed in 2016. We aim at updating the environmental permit but also at assessing the possibilities of investing in an additional flue gas scrubber that would improve the efficiency of the flue gas treatment as well as energy efficiency. The incineration capacity was unfortunately estimated too low in the original environmental permit, and we, therefore,

seek an update to that. Effects of the development operations on the environment were thoroughly analysed in the assessment project. I want to thank everyone who participated in this valuable work! The application for an updated environmental permit was submitted at the end of the year.

Political and legislative changes both in Europe and here in Finland set new challenges and the entire field of operation is in a constant change. There is no question that the coming years will bring changes also to Westenergy's operating environ-



## THERE IS NO QUESTION THAT THE COMING YEARS WILL BRING CHANGES ALSO TO WESTENERGY'S OPERATING ENVIRONMENT, AND WE MUST BE AWARE OF AND TO ADAPT TO THEM.

ment, and we must be aware of and to adapt to them. The BREF document is now being reassessed in the European Union, and as a result, new and presumably stricter environmental norms will be laid out. This is exactly the challenge we are trying to respond to with the flue gas scrubber.

In addition to the environmental considerations, we are aiming at developing the energy efficiency of the plant according to the strategy of the company. With the flue gas scrubber, district heat production would increase by 20 to 25 percent, and the Westenergy Waste-to-Energy plant would become one of the leading WtE plants when measured in energy efficiency and annual operating time. This is also in line with what the European Commission has outlined. Plans and estimations are being made in close cooperation, for instance, Vaasan Sähkö. It is exciting to see how the project proceeds.

To better prepare for the future challenges, also internal changes were made in the company and the organisation structure was adjusted accordingly. The Westenergy personnel is motivated, skillful and eager to take on the new challenges.

As before, cooperation with the owner companies and Vaasan Sähkö has worked well. Westenergy has competent owners and cooperation partners that are eager to develop.

Westenergy has determinedly developed its operations and is prepared for the future challenges. We are ready to take the next steps to become the leading WtE plant in Europe – whether the success is measured in energy efficiency, operating time, environmental awareness or openness. Economically Westenergy is on a solid ground. Together these factors create a good basis for taking on the future challenges.

I want to thank the personnel, company board, owner companies and other cooperation partners for the year 2016! Keep up the good work!

  
Olli Alhoniemi, Managing Director



| STRATEGIC OBJECTIVE  | TARGET VALUE  | REALISATION  |                     |
|--|---|--|---------------------|
| WE CREATE THE PREREQUISITES FOR AN OPERATIONALLY RELIABLE PLANT  | THE OPERATING TIME OF THE PLANT IN A YEAR: 7 390 HOURS<br><br>THE AMOUNT OF WASTE TO BE UTILISED IN A YEAR: 170 000 TONNES                            | THE OPERATING TIME OF THE PLANT IN 2016: 7 210 HOURS<br><br>163 000 TONNES OF UTILISED WASTE IN 2016                         | READ MORE, P. 12-17 |
| WE ENSURE CONTINUOUS STEAM PRODUCTION  | THE AMOUNT OF ELECTRICITY TO BE PRODUCED IN A YEAR: 78 GIGAWATT-HOURS<br><br>THE AMOUNT OF DISTRICT HEAT TO BE PRODUCED IN A YEAR: 240 GIGAWATT-HOURS | 78 GIGAWATT-HOURS OF ELECTRICITY PRODUCED IN 2016<br><br>259 GIGAWATT-HOURS OF DISTRICT HEAT PRODUCED IN 2016                | READ MORE, P. 12-17 |
| WE ACKNOWLEDGE THE REGULATIONS OUTLINED IN THE ENVIRONMENTAL PERMIT AS WELL AS ANY OTHER AUTHORITATIVE REGULATIONS         | NO DEVIATIONS FROM THE AUTHORITATIVE REGULATIONS  | NO DEVIATIONS FROM THE AUTHORITATIVE REGULATIONS   | READ MORE, P. 18-23 |
| WE BUILD AND DEVELOP THE POSITIVE PUBLIC IMAGE OF THE COMPANY, TAKING THE EXPECTATIONS OF THE INTEREST GROUPS INTO ACCOUNT | AT LEAST 3 000 VISITORS DURING THE YEAR<br><br>OVER 300 VISITORS AT THE OPEN HOUSE EVENT<br><br>NO COMPLAINTS ABOUT THE COMPANY OPERATIONS            | 3 145 VISITORS IN 2016<br><br>APPROX. 500 VISITORS AT THE OPEN HOUSE EVENT<br><br>NO COMPLAINTS ABOUT THE COMPANY OPERATIONS | READ MORE, P. 24-25 |
| WE AIM AT CREATING A RELAXED AND MOTIVATED WORKING ENVIRONMENT   | POSITIVE DEVELOPMENT IN WELL-BEING AT WORK, BASED ON THE SURVEY FOR THE PERSONNEL   | POSITIVE DEVELOPMENT IN WELL-BEING AT WORK, BASED ON THE SURVEY FOR THE PERSONNEL  | READ MORE, P. 26-27 |
| WE WORK SAFELY AND TAKE CARE OF OUR WELL-BEING   | 0 ACCIDENTS DURING THE YEAR<br><br>PERSONNEL ABSENCE DUE TO SICKNESS DURING THE YEAR: UNDER 3 %   | 0 ACCIDENTS IN 2016<br><br>PERSONNEL ABSENCE DUE TO SICKNESS IN 2016: 3,54 %   | READ MORE, P. 28-29 |
| FOR US, SAFETY OBSERVATIONS ARE A PART OF THE DAILY WORK AND WE PROMOTE PREVENTIVE SAFETY THINKING                         | 120 SAFETY OBSERVATIONS DURING THE YEAR   | 143 SAFETY OBSERVATIONS IN 2016  | READ MORE, P. 28-29 |
| WE ENSURE THAT THE COMPANY IS OPERATED COST-EFFECTIVELY  | EDITBA > 45 % OF THE TURNOVER   | EDITBA: 43 % OF THE TURNOVER   | READ MORE, P. 30-40 |





## WE CREATE THE PREREQUISITES FOR AN OPERATIONALLY RELIABLE PLANT

Over one third of the district heating needed by Vaasan Sähkö is produced in the Westenergy WtE plant. In the summer, district heat production covers the entire need.

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### WASTE QUALITY

The quality of the fuel lays the ground for the cost and energy efficiency of the plant, and is also the key element for environmentally conscious operations. The Westenergy WtE plant utilises annually some 185 000 tonnes of source-separated community waste, and spot checks are carried out to inspect the waste quality. The number of the inspected waste deliveries correlates to the amounts of waste produced in different parts of the operation area. The inspections provide information on the heat va-

lue of the waste and on the amount of non-combustible material in the deliveries. The inspection reports are sent to the waste suppliers and the environmental authorities.

In 2016, over twice as many waste inspections were carried out as the year before, the total amount of inspected waste being 550 tonnes. The results indicate a positive development in waste quality as the amount of non-combustible material in the waste deliveries has decreased when compared to the results from the previous year.

IN 2016, OVER TWICE AS MANY WASTE INSPECTIONS WERE CARRIED OUT AS THE YEAR BEFORE.

Despite the positive development in the waste quality, the amount of large metal waste has increased, causing problems in the bottom slag outlet system. In addition, plasterboards coming to the plant with construction waste deliveries significantly increase the consumption of lime in flue gas treatment.

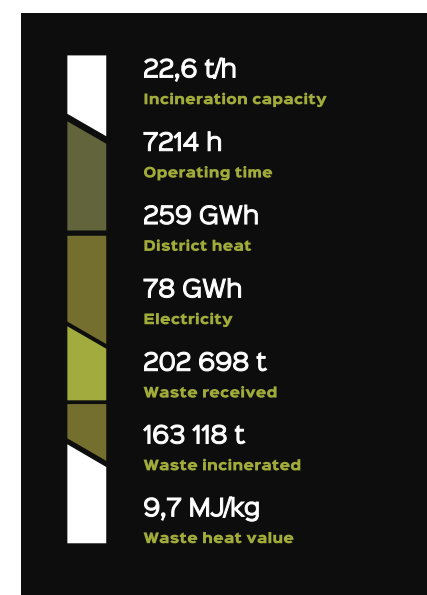
### PRODUCTION PROCESS

The fuel used in the Westenergy WtE plant is combustible, source-separated waste, that is, that part of waste that cannot be recycled. Waste trucks unload the waste into the bunker that works as a waste storage and where large items are crushed and mixed before incineration. Stable waste quality is the prerequisite for a stable incineration process.

Waste burns on the grate at the temperature of 1000 degrees Celsius. Thermal energy in the flue gases transfers to the water in the boiler tube walls and becomes steam. The steam flow makes the turbine rotate and the turbine drives, in turn, the electric generator. After the turbine, thermal energy transfers from the steam to the cold district heating water in the heat exchangers. In this way, waste energy is transformed into electricity and district

heat.

Flue gases are then purified in several stages, and residues are delivered to further treatment.



Production figures in 2016

**MUNICIPAL WASTE**

163118 tonnes from an area covering some 50 municipalities

**LIGHT FUEL OIL**

369 tonnes (as pilot fuel)

**HYDRATED LIME**

1382 tonnes (for flue gas treatment)

**ACTIVATED CARBON**

42,5 tonnes (for flue gas treatment)

**AMMONIA-WATER SOLUTION**

139 tonnes (for flue gas treatment)

**WATER**

34596 cubic meters from the municipal water system



**31 EMPLOYEES**



**7214 OPERATING HOURS**

**NITROGEN OXIDES** 162 367 kg  
**SULPHUR DIOXIDE** 12 070 kg  
**CARBON MONOXIDE** 7 770 kg  
**HYDROCHLORIC ACID** 6 081 kg  
**AMMONIA** 902 kg  
**PARTICLES** 286 kg  
**TTL ORGANIC CARBON** 160 kg  
**HYDROGEN FLUORIDE** 10 kg  
**MERCURY** 0,188 kg

**CARBON DIOXIDE**  
 55481 t

**TO THE POWER GRID**

77,81 GWh electricity

**TO THE DISTRICT HEATING NETWORK**

258,5 GWh district heat

**BOTTOM SLAG**  
 26238 tonnes

**BOILER ASH**  
 1258 tonnes

**FLUE GAS TREATMENT RESIDUE (APC)**  
 3278 tonnes

**WATER TO THE SEWAGE SYSTEM**  
 11648 cubic meters



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## DURING THE SERVICE STOP, BRICKS COVERING THE BOILER TUBE WALLS WERE REPLACED WITH INCONEL COATING.

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### SERVICE STOPS

In 2016, a significant alteration work was carried out in the plant. During the eight-week long service stop, the bricks that had covered the boiler tube walls were replaced with Inconel coating. Inconel is an alloy that endures the demanding conditions in the furnace better than bricks. The alteration improved the plant's operational reliability and raised the annual operating time.

In addition to the alteration to the furnace and common maintenance work, the combustion air flow to the grate was improved. Now the air flow led to the grate can be adjusted better than before and the boiler produces more energy. The consumption of, for instance, ammonia-water solution has also decreased significantly.

There were also two shorter shutdowns in the plant in 2016. In September, the plant was run down because of a water leakage in the boiler tube wall and repair work, and in October, a steam leak caused a plant shutdown. In both cases, the shutdowns could be kept short as the leakages were located

quickly and repair work started without delay.

When there is a service stop in the Westenergy Waste-to-Energy plant, electricity and district heating are produced in Vaskiluodon Voima and Vaasan Sähkö's other production units which means that consumers of electricity and district heating don't notice the production stops in the plant in any way. In addition, during a service stop, waste is delivered to a temporary storage area. After the service stop, waste is being delivered to the plant along normal waste deliveries. The household waste bins are emptied as usual so a service stop in the plant doesn't affect how often waste bins are emptied.

### UTILISING THE RESIDUES

There are three types of residues that are formed in the WtE plant. Bottom slag (about 15 % of the weight of the waste) consists of ash and unburned material such as glass, metal and stone. In addition to the bottom slag, there are boiler ash and flue gas treatment residue (together about 3 % of the weight of the waste).

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## WITH NEW AND INNOVATIVE WAYS, THE UTILISATION OF MUNICIPAL WASTE IS NEARING 100 PER CENT!

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Lakeuden Etappi, one of the owner companies, takes care of the further treatment of the bottom slag. First, metals are separated and recycled. Almost 80 % of the bottom slag consists of minerals. Studies have shown that this mineral mass can be used in excavating and in cement and concrete industries as it has qualities such as a good ability to resist frost that makes it an excellent replacer for gravel and rubble, and the mineral mass from Westenergy's bottom slag has been used in excavation work in Seinäjoki and Ilmajoki. A new and innovative way to utilise the slag that is now under study is to use it to manufacture paving stones. With these kinds of novel possibilities, the utilisation of the bottom slag is nearing 100 percent!

As much as ten percent of the bottom slag is metal. When metal warms up on the grate, it consumes energy formed elsewhere in the incineration process. In addition, aluminium and big steel parts can cause direct operational problems as they get stuck on the grate and bottom slag outlet system. Situations like these mean that in the worst case, the plant must be

run down which is costly. Removing metal items from the bottom slag outlet system can also cause dangerous situations for the personnel. Metal doesn't, therefore, make a good fuel for a Waste-to-Energy plant. For the occupational safety of the personnel, efficiency of the incineration process and cost-efficiency, it is worthwhile to separate metal from the combustible waste well before it arrives at the Westenergy Waste-to-Energy plant.

The other residues formed in the plant in addition to the bottom slag are boiler ash and flue gas treatment residue. Boiler ash, consisting of ash and impurities, fastens on the heat exchange surfaces of the boiler. The flue gas treatment residue consists of hydrated lime, activated carbon and impurities bound to these chemicals. Ekokem-Palvelu takes care of the further treatment of these residues

Read more on the residues on our website (choose Environment).



# USING WASTE TO PRODUCE ENERGY REPLACES FOSSIL FUELS, OIL AND COAL

Extracting energy from waste also means that significantly less waste ends up on landfills.

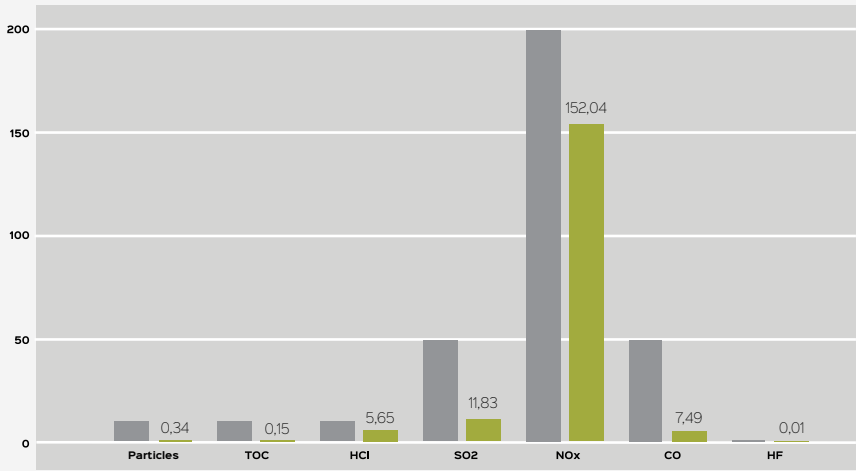
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## FLUE GAS TREATMENT AND EMISSIONS

Flue gases are purified efficiently with modern equipment, and as outlined in the environmental permit, the efficiency of the purification process is monitored with continuous measurements. There are two main stages in the flue gas treatment process: first, nitrogen oxides are removed by adding ammonia-water solution in the furnace with a computer-controlled system, and secondly, the acidic impurities and heavy metals are removed by adding activated carbon and hydrated lime to the flue gases after

the boiler. The residue dust formed in the process is, then, filtered out from the flue gases in the fabric filter. It is possible to reach a staggering purification efficiency of over 99 %, and after the treatment process, flue gases consist mainly of carbon dioxide and water vapor. The alteration work carried out during the service stop has made the purification process more effective as with a better control of the combustion air flow, the amount of nitrogen oxides in the flue gases could be reduced in the first place.

The levels of particles, total organic carbon (TOC),



Picture 1. The levels of the impurities in the flue gases in 2016, continuously measured (mg/Nm3).

■ the limit in the environmental permit for the level of the impurity  
■ the level of the impurity

hydrochloric acid (HCl), hydrogen fluoride (HF), sulphur dioxide (SO2), nitrogen oxides (NOx), carbon monoxide (CO), ammonia (NH3) and mercury (Hg) in the flue gases are being measured continuously.

Picture 1 illustrates the levels of these emission components in 2016 in comparison with the average daily limits. The levels of each emission component between 2012 and 2016 can be seen in pictures 2 – 13 (p. 20-23). The results indicate that one can be quite satisfied with the development of the plant operation. The levels of all the impurities fall well under the emission limit and in addition, a downward trend can be observed in most cases when compared to the previous year, the only notable exception being carbon monoxide of which level has somewhat risen but still being under 20 % of the emission limit.

Picture 14 (p. 22) illustrates the consumption of chemicals and fuel oil in relation to the amount of incinerated waste. The diagram depicts a very clear improvement in the plant process – flue gases could be purified with a smaller amount of chemicals. Especial-

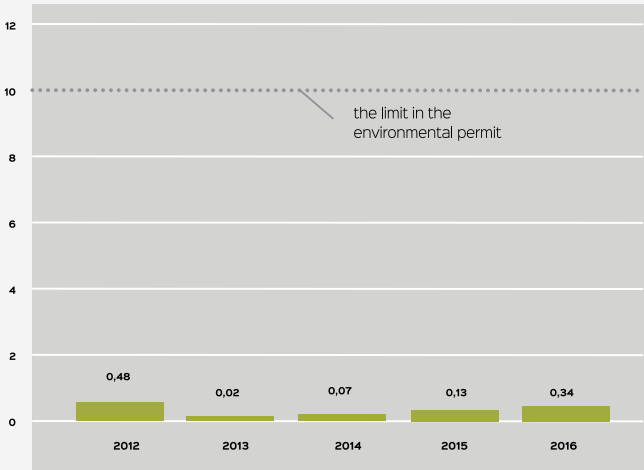
ly the consumption of ammonia-water solution has decreased when compared to the previous years.

In 2016, the operation of the Westenergy Waste-to-Energy plant met the requirements and conditions laid out in the environmental permit, and there were no environmental deviations in the plant process. Altogether 22 notifications were registered to the electric system of the environmental authority, most of these having to do with the start-up of the plant after the service stop and exceeding the 30-min average emission limit. It can, therefore, be said that the environmental objectives were achieved.

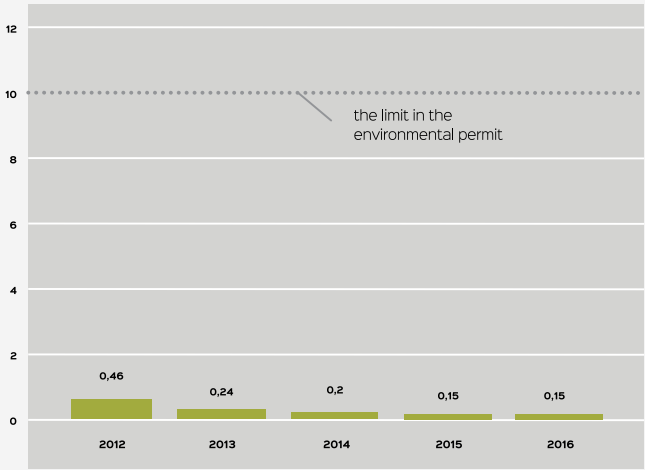
## ENVIRONMENTAL CONSIDERATIONS

Using waste as fuel replaces the use of fossil fuels such as coal and fuel oil which means that carbon dioxide emissions are reduced significantly, even as much as 100 000 to 200 000 tonnes annually. Because of the cooperation between Westenergy, Vaskiluodon Voima and Vaasan Sähkö, the CO2

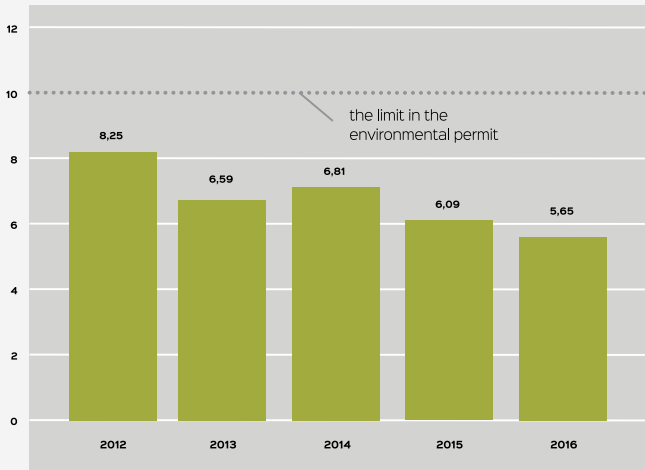




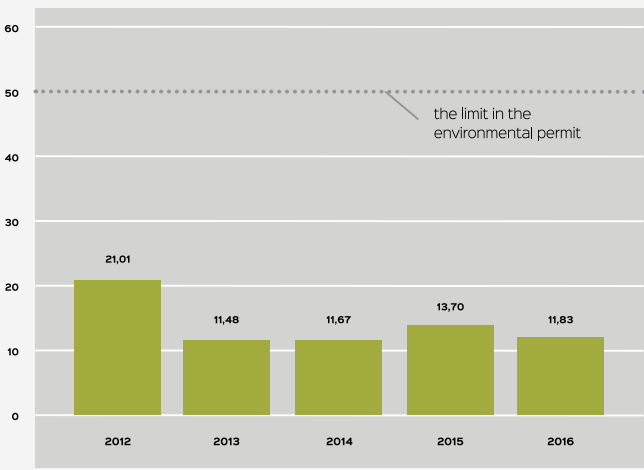
Picture 2. Particles (mg/Nm3)



Picture 3. Total organic carbon, TOC (mg/Nm3)



Picture 4. Hydrochloric acid, HCl (mg/Nm3)



Picture 5. Sulphur dioxide, SO2 (mg/Nm3)

emissions in Finland could be decreased by 1 % - this is one of the reasons why the cooperation named The Energy Turn-About in Vaasa won the Climate Act 2012 award. In addition, using waste as fuel in energy production means that landfilling requires significantly less space as almost 90 % of waste can be utilised in a WtE plant. Less landfilling means also a decrease in methane gas emissions. This is remarkable as methane is over 20 times more harmful a greenhouse gas than carbon dioxide.

Development is strongly going towards stricter emission limits in waste incineration, and Westenergy participates actively in a study with other operators in the field and authorities in preparing the new reference document for the best available technologies (BREF). Westenergy is preparing for the upcoming stricter emission limits and in August 2016, the application for updating the annual incineration

capacity in the environmental permit and investing in the possible flue gas scrubber was submitted. In December, it was added to the application that the purified condensation water would be utilised primarily in industrial processes and as secondary option, could be led to the sewage system. Utilising the condensation water is strongly based on the concept of circular economy and would guarantee the best energy efficiency and lowest environmental effects as well as improved flue gas treatment and operational efficiency.

MONITORING THE ENVIRONMENT

When operating a Waste-to-Energy plant, it is important to monitor the environment. For several years now, Westenergy has conducted environmental monitoring programs that have

been approved by the environmental authorities. In addition, Westenergy participates in the local air quality observation that is carried out by the environmental department of the city of Vaasa. The research results indicate no significant changes in air quality.

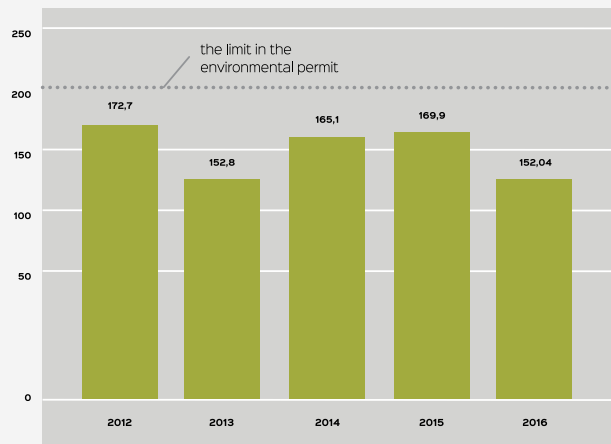
The sanitary water of the plant (11 648 m3 in 2016) is led to the municipal sewage system, and the melting and drainage water from the plant and other buildings (21 715 m3 in 2016) are led to a trench and forward to Stormossenutfallet via an oil trap and observation wells. In monitoring the environment, monitoring the quality of the surface and ground-

water forms a central part. This is done by analysing samples that are taken twice a year. Results have been similar with the previous years, indicating no significant changes in the water quality.

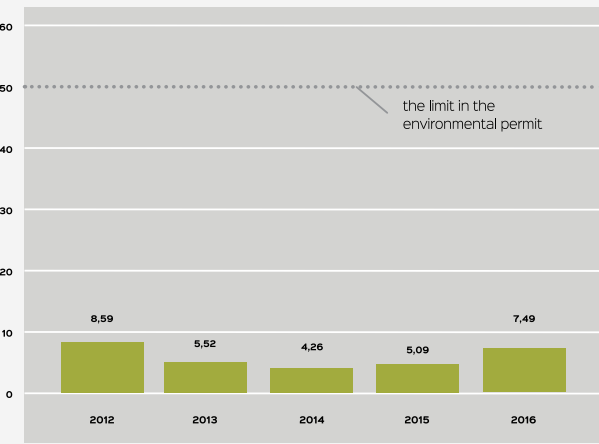
There is a lichen found on the nearby conservation area that is considered a near-threatened species (NT). The occurrence and condition of the lichen was inspected in 2016 by an outside observer, and the inspection indicated no changes in the lichen although lichens are considered very sensitive even to minor changes in air quality.

INFO!

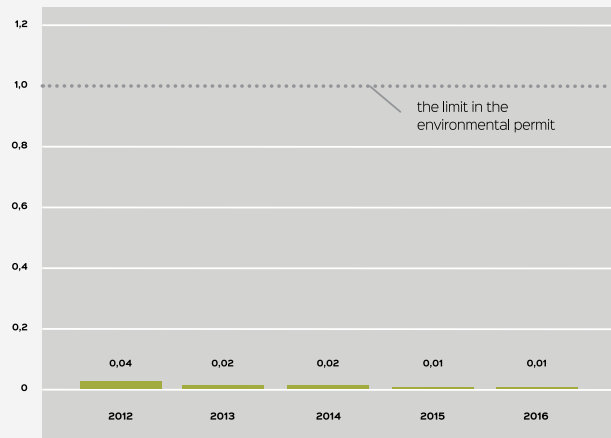
1 mg = 1 milligram = one thousandth of a gram    1 µg = 1 mikrogram = one millionth of a gram  
1 ng = 1 nanogram = one billionth of a gram



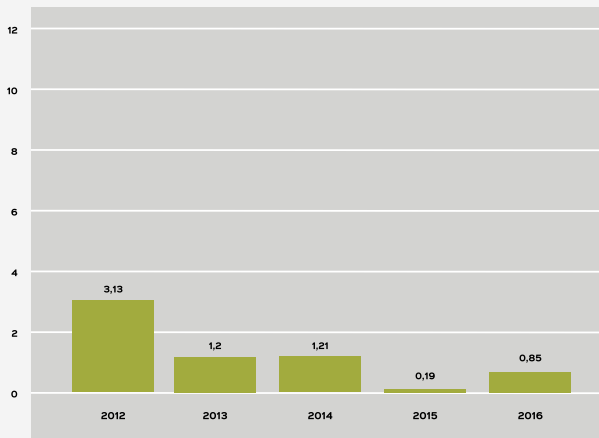
Picture 6. Nitrogen oxides, NOx (mg/Nm3)



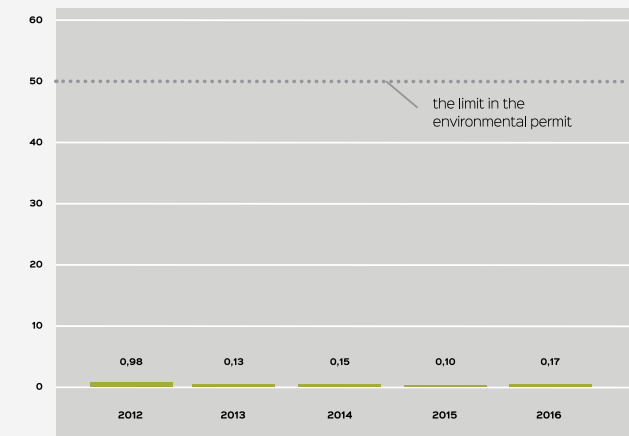
Picture 7. Carbon monoxide, CO (mg/Nm3)



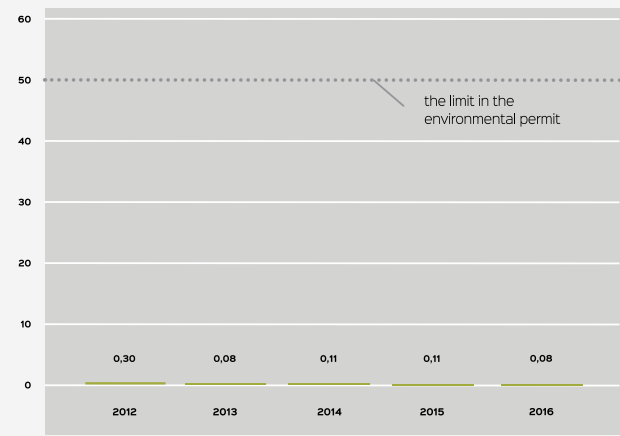
Picture 8. Hydrogen fluoride, HF (mg/Nm3)



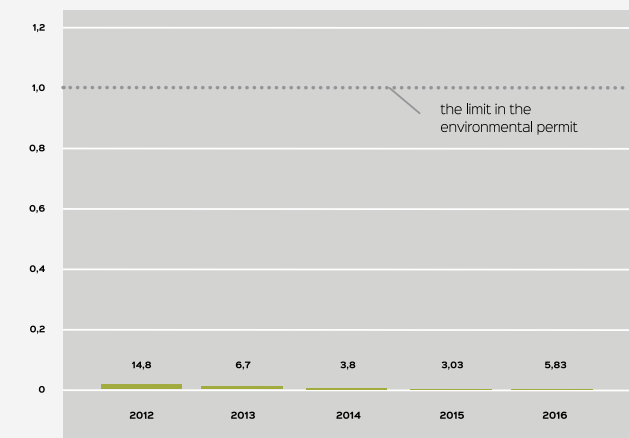
Picture 9. Ammonia, NH3 (mg/Nm3)



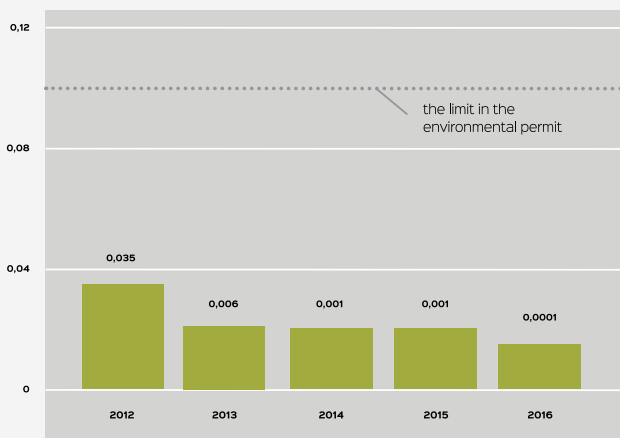
Picture 10. Mercury, Hg (µg/Nm3)



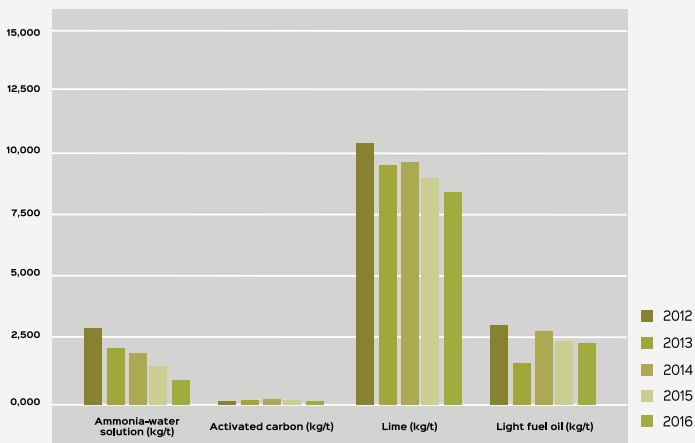
Picture 11. Cadmium and thallium, Cd + Tl (µg/Nm3)



Picture 12. Heavy metals (µg/Nm3)



Picture 13. Dioxins and furans (ng/Nm3)



Picture 14. Consumption of chemicals per one tonne of incinerated waste

| THE ANALYSED HEAVY METALS |               |                |
|---------------------------|---------------|----------------|
| Antimony (Sb)             | Chromium (Cr) | Manganese (Mn) |
| Arsenic (As)              | Cobalt (Co)   | Nickel (Ni)    |
| Lead (Pb)                 | Copper (Cu)   | Vanadium (V)   |





## OPENNESS IS A CENTRAL PART OF THE WAY THE COMPANY IS OPERATED

**Ever since the company was founded, we have informed openly and actively about current events in the company and plant.**

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Everyone who is interested in the Westenergy Waste-to-Energy plant is welcome to the plant. We are happy to tell and show what takes place in the plant and in this way, we can correct misunderstandings often associated with the waste-energy field. Understanding how the plant is operated helps visitors see also why it is important to sort waste.

The Westenergy WtE plant remains a popular place to visit and in 2016, over 3 000 people visited the plant. The number of visitors was high even though the eight-week long service stop was held between March and May which is usually the time of

the year when a lot of school children and students visit the plant. Just during October and November, 1 400 people visited the plant. School children and students represent a big part of the visitors but also members of various organisations, associations and work groups come and visit the plant. Last year, there were visitors all the way from Canada and several countries in Africa!

Feedback from the visitors has been very positive, and the study on the public image of the company has also indicated that Westenergy's public image is relatively positive.

### OPEN HOUSE EVENT

Westenergy organised the open house event in October for the fourth time. Coffee and sausages were served free of charge and there were fun competitions and exhibitions but still for many, the most important part of the event was the guided tour in the plant. Last year, the event was organised in cooperation with the owner companies Botnjarosk and Vestia, and people arrived at the plant by buss all the way from Ylivieska, Kristiinankaupunki and Teuva. In addition, there was a bus that drove people from the operation area of Loimi-Hämeen Jätehuolto to visit the Westenergy WtE plant. Positive feedback from the visitors encourages us to organise the event again next year.

Students of energy technology at the Vaasa University of Applied Sciences helped the Westenergy personnel in organising the event, and the students have been of great help also after the event when large groups of people have visited the plant.

### COOPERATION WITH ORGANISATIONS IN THE ENERGY FIELD

Westenergy is represented in different organisations within the waste-energy field. We are a member of ISWA (The International Solid Waste Association) which promotes and develops professional waste management on an international level. Last year, Westenergy donated the funds reserved for co-operation partners' Christmas gifts to ISWA's charity program that enables children in Nicaragua who live and work on landfill sites to go to school.

Westenergy is also a member of CEWEP (Confederation of European Waste-to-Energy Plants). CEWEP is a European organisation whose members are owners and operators of Waste-to-Energy plants. Membership in CEWEP indicates commitment to high environmental standards, low emissions and using the best available technology.

Westenergy is also a member in domestic organisations such as Energiategollisuus ry (Energy industry / ET) and Jätelaitosyhdistys (Organisation of

Waste-to-Energy plants / JLY). ET represents various companies whose operation involves producing and/or selling electricity, district heating or cooling or related services. JLY represents public waste management and the municipal waste management companies.

In addition, Westenergy is a member in O Accidents Forum which is a network of companies that seeks to improve their occupational health and safety operations and share good practices.

### COOPERATION WITH STUDENTS

In 2016, the maintenance system of the plant and its development possibilities were studied in a diploma thesis, and based on the research, a detailed instruction manual that helps operators and the maintenance team use the maintenance system more efficiently was compiled.

An art work, Miss Westenergy, arrived at the lobby of the administration building in 2016. Her dress is made of Westenergy's worn-out flags and hundreds of aluminium tealight cups collected in a campaign that was directed at school children ('Tea light cup chase'). Standing in the lobby, the piece of art reminds visitors of the importance of sorting waste and seeks to stir up discussion on innovative possibilities to utilise waste.

Managing Director Olli Alhoniemi is a member in VEBIC's (Vaasa Energy Business Innovation Centre) consultative steering group that supports the operation of the University of Vaasa and VEBIC and seeks to improve cooperation between the university and the surrounding society.

**HAVE YOU ALWAYS WANTED TO KNOW WHAT TAKES PLACE IN A WASTE-TO-ENERGY PLANT?**

**GATHER A GROUP, CONTACT THE COMMUNICATIONS OFFICERS AND COME AND FIND IT OUT!**

**MORE INFORMATION ON VISITING THE WTE PLANT AT WESTENERGY.FI**





## WE AIM AT CREATING A RELAXED AND MOTIVATED WORKING ENVIRONMENT

Improvements in HR matters focused on internal communications and the goal and development dialogues.

# 26

At the end of the year, the organisation structure of the company went through changes to improve operations and to better respond to the future challenges. The operators shifted from the six-shift system to working in five shifts, and now 15 operators form the operating staff of the plant (previously 18). At the same time, the so-called day shifts were removed, and the maintenance team, consisting of five people, have now the overall responsibility over the maintenance work in the plant. The operators that were previously a part of the operating team, received other positions inside the organisation, for

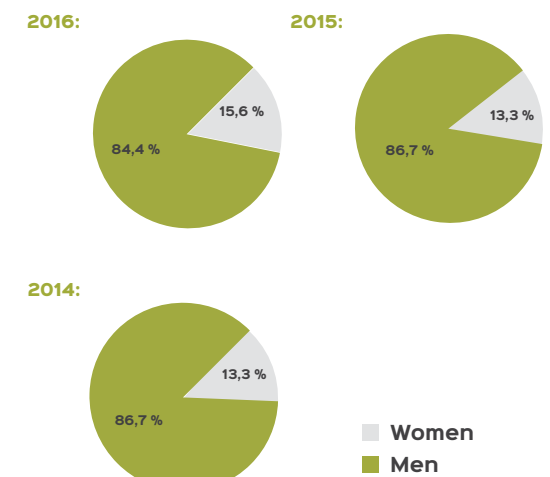
instance, in the maintenance team and as operating engineer. In 2016, waste quality inspector was also employed. She analyses the contents of the incoming waste and the functionality of waste sorting. The organisational changes affected also the people working at the office as their job descriptions were updated to better match the skills and know-how of the employees.

In 2016, there were also altogether 11 summer employees at Westenergy of whom some worked at the office and others in shifts and in the maintenance team.

## DEVELOPMENT IN WELL-BEING AT WORK HAS BEEN POSITIVE WHEN COMPARED TO THE PREVIOUS YEAR.

### JOB SATISFACTION

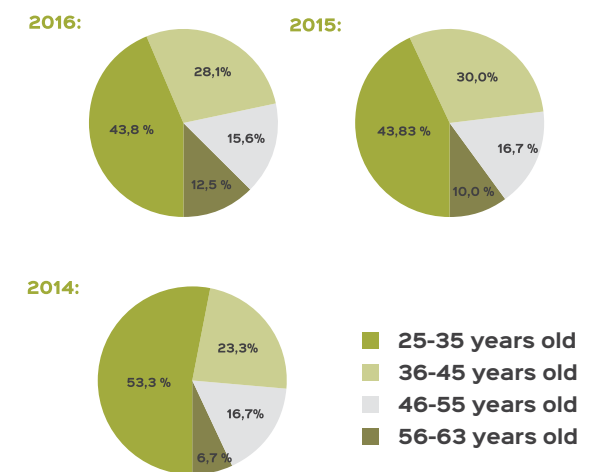
Well-being at work and job satisfaction as well as their development were thoroughly analysed in 2016, and the study revealed that the personnel enjoys their work and that development in job satisfaction has been positive. Based on the same analysis conducted the previous year, for instance, the coverage of the goal and development dialogues and internal communications were improved. There remains, however, room for improvement, for instance, within the flow of information and managerial work.



### PERSONNEL TRAINING

It is important to Westenergy that the personnel enjoy their work and that prerequisites for personal development are created. The training plan for the personnel is outlined annually after the goal and development dialogues. In 2016, the personnel took part altogether in 200 hours of different training which is on average, five training days for every employee in a year. The subjects of training for the entire personnel were, for instance, the new Office365 environment and internal audits. The engineer officer trainings program began the year before, and the first operator completed the program in 2016.

### Personnel sex ratio.



### Personnel age distribution.





## WE WORK SAFELY AND TAKE CARE OF OUR WELL-BEING

We promote preventive health and safety operations.

# 28

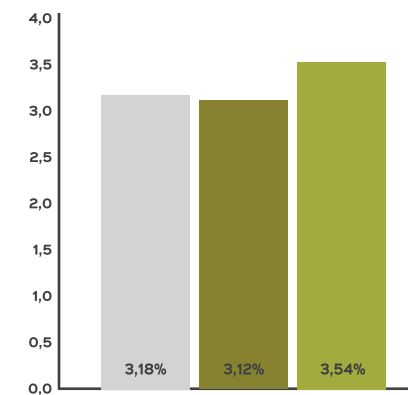
Occupational health and safety are valued high at Westenergy. Work is done safely, and the goal is to avoid accidents. The personnel are encouraged to take care of their well-being as in achieving the company objectives, the well-being of the personnel plays a central role. To support well-being, the personnel can use the gym of the plant, and activity on leisure time is supported by offering vouchers that can be used to pay for various culture and sports activities.

In 2016, Westenergy received the classification

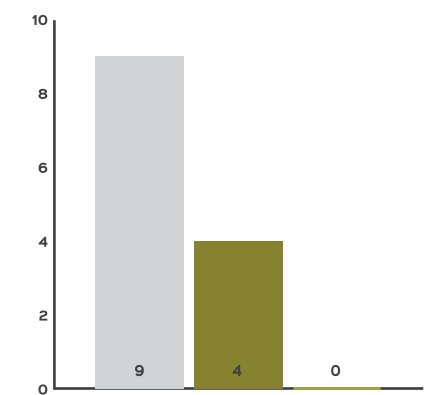
2: Towards the Top of the World from the Finnish 0 Accidents Forum. The classification indicates that occupational safety has been improved at the work place, and that the procedures for investigating and assessing the accidents and dangerous situations are in order and have developed when compared to the previous years.

No accidents occurred at the Westenergy Waste-to-Energy plant in 2016. The eight-week long service stop was considered a risk as different special work were carried out during the stop and

IN 2016, WESTENERGY RECEIVED THE CLASSIFICATION 2: TOWARDS THE TOP OF THE WORLD FROM THE FINNISH 0 ACCIDENTS FORUM.



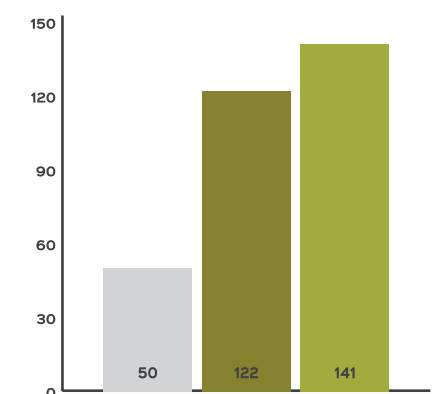
Personnel absence due to sickness-%



The number of accidents

there were a lot of employees working at the plant round the clock. Safe work methods were, therefore, stressed during the service stop, all the new employees participated in safety training and regular safety inspections were carried out in the plant to ensure that work was done safely.

The personnel were encouraged to do safety observations actively not just during the service stop but after it as well, and the goal of over 120 safety observations reported by the personnel was achieved. Promoting a safe work culture is, however, more important than a certain number of reported safety observations as by putting safety first, one can improve not just one's own but also the fellow workers' safety at work.



The number of safety observations

2014 2015 2016



ANNUAL ACTIVITY REPORT  
1.1. - 31.12.2016

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Westenergy has been registered to the Companies' Register on the 1st of January 2008. The register number of the company is 2165379 - 9, the registered office being in Mustasaari. The company is owned by Botnjarosk, Lakeuden Etappi, Millespakka, Stormossen and Vestia. Year 2016 was the ninth accounting period for the company. The company's main line of business is operating a Waste-to-Energy plant. The company is operated according to the absorption principle and does not pay dividends.

Westenergy has built a waste incineration plant in

Mustasaari, Koivulahti and has begun to sell waste treatment service to its stakeholders, operating according to the absorption principle. The steam produced in the incineration plant is transformed into electricity and district heat using equipment owned by the cooperation partner Vaasan Sähkö. The plant has been in operation since August 2012.

In 2016, the eight-week long service stop of the plant created some limitations for the company operations. The low operating time of the plant affected the company's turnover, this being 16 783

340 euros in 2016. It was noticed already some years ago that the brickwork in the furnace was unreliable, and during the service stop in 2016, the bricks were replaced with a more durable material, Inconel coating. At the same time, the flow of the primary air was improved. In addition, investments on safety were carried out, for instance, as a form of a service platform to the boiler and as improvements in handling the tarpaulins of the waste trucks.

Selling waste incineration service forms the major part of the turnover (72 %), the compensation from the steam produced in the plant representing 26 % of the turnover. The amount of other sales is 2 %. Other sales mainly represents selling metal separated from the waste and the bottom slag. The key figures illustrating the company operations can be seen in the table below.

The financial status of the company is stable due to the delivery volumes that were bigger than estimated and a higher price of electricity. Because of the investments carried out in the spring 2016, the plant could be operated more efficiently already in the same year, and in producing district heat, we did well as the estimated production amount was exceeded especially at the end of the year. Due to the improved efficiency of the boiler, savings were achieved in the cost of the chemicals. The amount of the delivered waste exceeded the estimations significantly, and some of it was stored on the temporary storage site during the service stop. An additional service stop caused some additional operating costs but otherwise the costs were as estimated.

The cash flow of the company was positive in the accounting period, and the company cleared the fi-

nancial obligations as planned. Most of the company finances are tied to a fixed rate of interest to minimise the financial risk. For 15 % of the loans of the company, the terms are reviewed in 2018, and 85 % of the loans fall due to payment in 2017. The company has protected a part of its long-term liability from the effects of unfavorable changes occurring in the finance market with the help of financial instruments and aims, in this way, at reducing financial risk and fluctuation in the result.

The research and development projects have mainly been carried out as thesis work and reports, and they deal with operating the Waste-to-Energy plant and improving the systems used in the plant. Westenergy has started to study the possibility of investing in a flue gas scrubber. With the scrubber, Westenergy aims at responding to the environmental norms that are likely to become stricter in the future. The assessment of environmental effects for updating the capacity of the plant in the environmental permit and for the flue gas scrubber was concluded in 2016 and the application for the updated environmental permit was submitted at the end of the year. Westenergy has participated in the studies and observations outlined in the environmental permit, such as is in monitoring the air quality in Vaasa and in analysing the residues.

Westenergy is committed to its quality, environment and occupational health and safety policy. With the help of the certified systems, Westenergy aims at improving the quality and cost efficiency of its operations continuously. The occupational health and safety system helps recognise and control safety risks and maintain the health and safety of

| Year                                | 2016    | 2015    | 2014    |
|-------------------------------------|---------|---------|---------|
| Turnover, meur                      | 16,8    | 18,3    | 17,4    |
| Amount of incinerated waste, tonnes | 163 118 | 168 355 | 178 003 |
| The operation time, %               | 82,1    | 85,1    | 89,8    |

| 2016    | 2015    | 2014    |
|---------|---------|---------|
| 16,8    | 18,3    | 17,4    |
| 163 118 | 168 355 | 178 003 |
| 82,1    | 85,1    | 89,8    |

Key figures on the company operations.



the personnel as well as improve the level of occupational health and safety operations. With procedures and programs outlined in the environmental system, Westenergy controls the environmental risks. Improvements in quality, environmental matters and occupational health and safety are reported to interest groups mainly in the annual report. Westenergy's management system meets the requirements of the quality (ISO 9001:2015), environment (ISO 14001:2015) and occupational health and safety (OHSAS 18001:2008) standards. The management system has been assessed by an independent auditor in 2016.

At the beginning of the accounting period, there were 31 employees working at Westenergy, and 34 employees at the end of the accounting period. There were on average 35 employees working at Westenergy in 2016. Salaries and fees were 2 161 588 euros in 2016. The key figures related to the personnel can be seen in the table below.

Paavo Eloniemi (Chairman of the Board), Heikki Halla-aho (Vice-Chairman of the Board), Håkan Anttila, Paavo Hankonen, Jouko Huumarkangas, Ari Perälä, Harri Virtanen and Gunbritt Tallbäck (Board members) formed the company board during the accounting period. The company board has gathered altogether eight times during the accounting period. Olli Alhoniemi has acted as the Managing Director. The accountant of the company has been APA firm Ernst & Young Oy, principal responsible auditor being Kjell Berts, APA.

In 2016, Westenergy was served with an action for

damages. The case is still open.

After the accounting period, there were no other significant events.

The registered capital stock of the company was 12 000 000 euros at the end of the accounting period. There are 12 000 000 shares in the company. The redemption clause of the articles of association applies to the shares according to which other shareholders have the overriding right of redemption, the company holding the secondary right, if the new owner is some other than a current owner.

Because of the absorption principle it is not relevant to compare the key figures to profit-making companies to analyse the business operations, financial status or result of the company.

According to the 3rd article of the articles of association, no dividends are paid. The company board suggests that the profit for the period is to be transferred to the profit/loss account to the company's capital.

Vaasa 20 April 2017

Westenergy Oy Ab, Company Board

| Year                            | 2016 | 2015 | 2014 |
|---------------------------------|------|------|------|
| Number of employees, 1 Jan      | 31   | 32   | 31   |
| Number of employees, 31 Dec     | 34   | 30   | 34   |
| Number of employees, on average | 35   | 34   | 32   |
| Salaries and fees, M€           | 2,16 | 2,04 | 2,03 |

Key figures related to the personnel.



**Paavo Eloniemi**  
Chairman of the Board  
*Board member since 2014.*



**Heikki Halla-aho**  
Vice-Chairman  
*Board member since 2014.*



**Håkan Anttila**  
*Board member since 2008.  
Chairman of the Board 2008 – 2013.*



**Gunbritt Tallbäck**  
*Board member since 2014.*



**Paavo Hankonen**  
*Board member since 2014.*



**Jouko Huumarkangas**  
*Board member since 2014.*



**Ari Perälä**  
*Board member since 2014.*



**Harri Virtanen**  
*Board member since 2014.*

PROFIT AND LOSS STATEMENT

BALANCE SHEET

|   |                     |                     |
|---|---------------------|---------------------|
| Currency EURO                                 | 1.1.2016-31.12.2016 | 1.1.2015-31.12.2015 |
| NET TURNOVER                                  | 16 783 339,96       | 18 313 705,56       |
| Other operating income                        | 0,00                | 3 250 000,00        |
| Raw materials and services                    |                     |                     |
| Raw materials and consumables                 |                     |                     |
| Purchases during the financial year           | -3 289 271,48       | -3 699 435,20       |
| Variation in inventories                      | 85 755,10           | 4 007,69            |
| External services                             | -2 225 181,50       | -2 415 197,01       |
| Raw materials and services total              | -5 428 697,88       | -6 110 624,52       |
| Staff expenses                                |                     |                     |
| Wages and salaries                            | -2 161 587,78       | -2 041 678,26       |
| Social security expenses                      |                     |                     |
| Pension expenses                              | -388 851,52         | -359 169,37         |
| Other social security expenses                | -97 452,64          | -92 144,43          |
| Staff expenses total                          | -2 647 891,94       | -2 492 992,06       |
| Depreciation and reduction in value           |                     |                     |
| Depreciation according to plan                | -6 558 932,72       | -6 521 910,25       |
| Depreciation and reduction in value total     | -6 558 932,72       | -6 521 910,25       |
| Other operating charges                       | -1 534 737,89       | -1 669 575,18       |
| OPERATING PROFIT (LOSS)                       | 613 079,53          | 4 768 603,55        |
| Financial income and expenses                 |                     |                     |
| Other interest and financial income           | 0,62                | 119,23              |
| Interest and other financial expenses         | -2 527 119,95       | -2 594 431,37       |
| Financial income and expenses total           | -2 527 119,33       | -2 594 312,14       |
| PROFIT (LOSS) BEFORE APPROPRIATIONS AND TAXES | -1 914 039,80       | 2 174 291,41        |
| Tax reserves                                  |                     |                     |
| Change in depreciation reserve                | 2 200 200,00        | -2 175 798,20       |
| PROFIT (LOSS) FOR THE FINANCIAL YEAR          | 286 160,20          | -1 506,79           |

|                                      |               |               |
|--------------------------------------|---------------|---------------|
| Currency EURO                        | 31.12.2016    | 31.12.2015    |
| ASSETS                               |               |               |
| Non-current assets                   |               |               |
| Intangible assets                    |               |               |
| Long-term expense items              | 8 530 067,91  | 10 236 081,52 |
| Intangible assets total              | 8 530 067,91  | 10 236 081,52 |
| Tangible assets                      |               |               |
| Land and waters                      | 711 581,18    | 711 581,18    |
| Buildings                            | 27 759 187,18 | 28 906 664,81 |
| Machinery and equipment              | 45 118 035,32 | 47 138 091,22 |
| Other tangible assets                | 13 060,00     | 13 060,00     |
| Tangible assets total                | 73 601 863,68 | 76 769 397,21 |
| NON-CURRENT ASSETS TOTAL             | 82 131 931,59 | 87 005 478,73 |
| Current assets                       |               |               |
| Inventories                          |               |               |
| Raw materials and consumables        | 1 947 714,27  | 1 861 959,17  |
| Inventories total                    | 1 947 714,27  | 1 861 959,17  |
| Short-term                           |               |               |
| Trade debtors                        | 822 267,90    | 1 913 223,78  |
| Deferred tax assets                  | 398 656,60    | 0,00          |
| Other debtors                        | 264,12        | 26,89         |
| Prepayments and accrued income       | 51 942,97     | 73 518,80     |
| Short-term total                     | 1 273 131,59  | 1 986 769,47  |
| Cash in hand and at banks            | 6 859 791,14  | 6 436 885,86  |
| CURRENT ASSETS TOTAL                 | 10 080 637,00 | 10 285 614,50 |
| ASSETS TOTAL                         | 92 212 568,59 | 97 291 093,23 |
| LIABILITIES                          |               |               |
| Subscribed capital                   |               |               |
| Subscribed capital                   | 12 000 000,00 | 12 000 000,00 |
| Other reserves                       |               |               |
| Fair value reserve                   | -1 594 626,40 | 0,00          |
| Retained earnings (loss)             | -327 824,92   | -326 318,13   |
| Profit (loss) for the financial year | 286 160,20    | -1 506,79     |
| CAPITAL AND RESERVES TOTAL           | 10 363 708,88 | 11 672 175,08 |
| Tax reserves                         |               |               |
| Depreciation reserve                 | 4 635 705,95  | 6 835 905,95  |
| Creditors                            |               |               |
| Long-term                            |               |               |
| Loans from credit institutions       | 6 119 781,06  | 70 319 781,06 |
| Long-term total                      | 6 119 781,06  | 70 319 781,06 |
| Short-term                           |               |               |
| Loans from credit institutions       | 64 200 000,00 | 4 680 000,00  |
| Advances received                    | 1 402 200,00  | 104 987,00    |
| Trade creditors                      | 1 265 747,33  | 2 518 173,35  |
| Other creditors                      | 570 749,56    | 289 195,52    |
| Accruals and deferred income         | 3 654 675,81  | 870 875,27    |
| Short-term total                     | 71 093 372,70 | 8 463 231,14  |
| CREDITORS TOTAL                      | 77 213 153,76 | 78 783 012,20 |
| LIABILITIES TOTAL                    | 92 212 568,59 | 97 291 093,23 |



|  |               |               |
|--|---------------|---------------|
| Currency EURO  | 31.12.2016    | 31.12.2015    |
| Cash flow from operating activities                          |               |               |
| Profit (loss) before appropriations and taxes                | -1 914 039,80 | 2 174 291,41  |
| Corrections:   |               |               |
| Depreciation and amortization                                | 6 558 932,72  | 6 521 910,25  |
| Financial income and expenses                                | 2 527 119,33  | 2 594 312,14  |
| Cash flow before change in working capital                   | 7 172 012,25  | 11 290 513,80 |
| Change in working capital:                                   |               |               |
| Increase(-)/decr.(+) in short-term interest-free receivables | 713 637,88    | -401 826,27   |
| Increase(-)/decrease (+) in inventories                      | -85 755,10    | -4 007,69     |
| Increase(+)/decr.(-) in short-term interest-free liabilities | 3 110 141,56  | 518 863,33    |
| Cash flow from operations before financial items and taxes   | 10 910 036,59 | 11 403 543,17 |
| Interest paid and pmts for other financ. exp. from operat.   | -2 527 119,95 | -2 594 431,37 |
| Financial income received from operations                    | 0,62          | 119,23        |
| Cash flow before exceptional items                           | 8 382 917,26  | 8 809 231,03  |
| Cash flow from operating activities (A)                      | 8 382 917,26  | 8 809 231,03  |
| Cash flow from investments:                                  |               |               |
| Investments in tangible and intangible asset                 | -1 685 385,58 | -115 051,89   |
| Cash flow from investments (B)                               | -1 685 385,58 | -115 051,89   |
| Cash flow from financing:                                    |               |               |
| Fair value reserve, change                                   | -1 594 626,40 |               |
| Repayment of long-term loans                                 | -4 680 000,00 | -4 074 999,98 |
| Cash flow from financing (C)                                 | -6 274 626,40 | -4 074 999,98 |
| Change in cash and cash equivalents(A+B+C) incr.(+)/decr.(-) | 422 905,28    | 4 619 179,16  |
| Cash and cash equivalents at beginning of period             | 6 436 885,86  | 1 817 706,70  |
| Cash and cash equivalents at end of period                   | 6 859 791,14  | 6 436 885,86  |

ACCRUAL PRINCIPLES AND METHODS

Intangible assets marked to non-current assets are valued to their acquisition cost.

The fixed assets of the company are valued to the variable and to the fixed acquisition cost related to the fixed assets project.

The acquisition cost of the fixed assets owned by the company is depreciated according to the defined plan.

The depreciation plan is based on the depreciable lifetime.

| Bases of the estimated depreciations according to plan and changes in them: |                                 |                            |
|---|---------------------------------|----------------------------|
| Assets group  | Estimated operating life, years | Depreciation method        |
| Intangible assets   | 10                              | Straight-line depreciation |
| Building  | 40                              | Straight-line depreciation |
| Machinery and equipment, production machinery and equipment                 | 5-20                            | Straight-line depreciation |

CAPITALISED INTERESTS PAYABLE

The undepreciated part of the capitalised interest payable in the balance sheet item intangible assets is as follows:

|  |               |               |
|--|---------------|---------------|
|  | 31.12.2016    | 31.12.2015    |
| Capitalised in the accounting period                     | 0,00          | 0,00          |
| Capitalised interests payable in total                   | 4 187 014,14  | 4 187 014,14  |
| Accumulated depreciation and reduction in value on 1 Jan | 1 674 805,64  | 1 256 104 ,23 |
| Depreciation in the accounting period                    | 418 701,41    | 418 701,41    |
| Accumulated depreciation                                 | 2 093 507,05  | 1 674 805,64  |
| Undepreciated amount                                     | 2 093 507,09  | 2 512 208,5   |
|  | 2016          | 2015          |
| Intangible assets  |               |               |
| Other long-term expense items                            |               |               |
| Acquisition cost on 1 Jan                                | 17 060 135,93 | 17 060 135,93 |
| Acquisition cost on 31 Dec                               | 17 060 135,93 | 17 060 135,93 |
| Accumulated depreciation and reduction in value on 1 Jan | 6 824 054,41  | 5 118 040,83  |
| Depreciation in the accounting period                    | 1 706 013,61  | 1 706 013,58  |
| Accumulated depreciation                                 | 8 530 068,02  | 6 824 054,41  |
| Book value   | 8 530 067,91  | 10 236 081,52 |

| Tangible assets  | 2016           | 2015           |
|--|----------------|----------------|
| Land   |                |                |
| Acquisition cost on 1 Jan                                | 711 581,18     | 711 581,18     |
| Additions  | 0,00           | 0,00           |
| Acquisition cost on 31 Dec                               | 711 581,18     | 711 581,18     |
| Buildings  |                |                |
| Acquisition cost on 1 Jan                                | 32 817 147,33  | 32 733 870,74  |
| Additions  | 28 220,00      | 83 276,59      |
| Reductions   |                |                |
| Acquisition cost on 31 Dec                               | 32 845 367,33  | 32 817 147,33  |
| Accumulated depreciation and reduction in value on 1 Jan | -3 910 482,52  | - 2 738 626,42 |
| Depreciation in the accounting period                    | - 1 175 697,63 | - 1 171 856,10 |
| Accumulated depreciation                                 | -5 086 180,15  | -3 910 482,52  |
| Book value   | 27 759 187,18  | 28 906 664,81  |
| Machinery and equipment                                  |                |                |
| Acquisition cost on 1 Jan                                | 58 315 432,23  | 58 283 656,93  |
| Additions  | 1 657 165,58   | 31 775,30      |
| Reductions   |                |                |
| Acquisition cost on 31 Dec                               | 59 972 597,81  | 58 315 432,23  |
| Accumulated depreciation and reduction in value on 1 Jan | -11 177 341,01 | -7 533 300,44  |
| Depreciation in the accounting period                    | -3 677 221,48  | -3 644 040,57  |
| Accumulated depreciation                                 | -14 854 562,49 | -11 177 341,01 |
| Book value   | 45 118 035,32  | 47 138 091,22  |

CAPITAL AND RESERVES

| Capital and reserves                               | 31.12.2016    | 31.12.2015    |
|--|---------------|---------------|
| Restricted capital                                 |               |               |
| Subscribed capital on 1 Jan                        | 12 000 000,00 | 12 000 000,00 |
| Subscribed capital on 31 Dec                       | 12 000 000,00 | 12 000 000,00 |
| Other reserves total                               | -1 594 626,40 | 0,00          |
| Restricted capital and reserves in total on 31 Dec | 10 405 373,60 | 12 000 000,00 |
| Non-restricted capital                             |               |               |
| Retained earnings (loss)                           | -327 824,92   | -326 318,13   |
| Dividend distribution                              | 0,00          | 0,00          |
| Profit/loss for the financial year +/-             | 286 160,20    | -1 506,79     |
| Non-restricted capital and reserves in total       | -41 664,72    | -327 824,92   |
| Capital and reserves in total                      | 10 363 708,88 | 11 672 175,08 |

There are no distributable assets on 31 December 2016.

CREDITORS

| Creditors specified            | 2016          | 2015          |
|--------------------------------|---------------|---------------|
| Long-term                      |               |               |
| Loans from credit institutions | 6 119 781,06  | 70 319 781,06 |
| Short-term                     |               |               |
| Loans from credit institutions | 64 200 000,00 | 4 680 000,00  |
| Trade creditors                | 1 265 747,33  | 2 518 173,35  |
| Accruals and deferred income   | 3 654 675,81  | 870 875,27    |
| Other creditors                | 570 749,56    | 289 195,52    |
| Advances received              | 1 402 200,00  | 104 987,00    |
| In total                       | 77 213 153,76 | 78 783 012,20 |

PERSONNEL AND COMPANY BOARD

The company employed altogether 34 people in the accounting period.

| Staff expenses                              | 2016          | 2015          |
|---|---------------|---------------|
| Wages and salaries in the accounting period | 2 096 087,78  | 1 979 278,26  |
| Recompense of the company board             | 65 500,00     | 62 400,00     |
| Pension expenses                            | 388 851,52    | 359 169,37    |
| Social security expenses                    | 97 452,64     | 92 144,43     |
| Staff expenses total                        | 2 647 891,94  | 2 492 992,06  |
| Financial income and expenses               | 2016          | 2015          |
| Interest income                             | 0,62          | 119,23        |
| Interest expenses                           | -2 527 119,95 | -2 594 431,37 |
| Financial income and expenses in total      | -2 527 119,33 | -2 597 312,14 |
| Debtors                                     | 2016          | 2015          |
| Short-term                                  |               |               |
| Trade debtors                               | 822 267,90    | 1 913 223,78  |
| Other debtors                               | 264,12        | 26,89         |
| Prepayments and accrued income              | 51 942,97     | 73 518,80     |
| Short-term debtors in total                 | 874 474,99    | 1 986 769,47  |



| CONTINGENT LIABILITIES AND OTHER COMMITMENTS                               | 2016           | 2015           |
|--|----------------|----------------|
| <b>Liabilities pledged with floating charge</b>                            |                |                |
| Loans from credit institutions   | 70 319 781,06  | 74 999 781,06  |
| <b>Liabilities pledged with real estate mortgage</b>                       |                |                |
| Loans from credit institutions   | 70 319 781,06  | 74 999 781,06  |
| <b>Floating charge</b>   | 110 000 000,00 | 110 000 000,00 |
| Real estate mortgage   | 110 000 000,00 | 110 000 000,00 |
| <b>Bank account limit</b>  | 200 000,00     | 200 000,00     |
| of which in use  | 0,00           | 0,00           |
| <b>Other guarantees</b>  |                |                |
| Bank guarantee   | 600 000,00     | 600 000,00     |
| <b>Other commitments</b>   |                |                |
| Leasing  | 654,72         | 3 117,36       |
| VAT refund from property investments                                       | 4 621 131,96   | 5 374 495,13   |
| Capital values of the derivative contracts covering the interest rate risk | -1 993 283,00  |                |
| Negative balance is presented in fair value reserve in capital and reserve |                |                |
| <b>LIABILITIES THAT WILL FALL DUE LATER THAN IN FIVE YEARS</b>             | 2016           | 2015           |
| Loans from credit institutions   | 4 535 781,06   | 5 645 781,06   |

ACCOUNTING BOOKS USED IN THE ACCOUNTING PERIOD

General Journal, IT  
General Ledger, IT  
Balance Sheet Book, bound  
Payroll Accounting as separate

VERIFICATION TYPES USED IN THE ACCOUNTING PERIOD

Handelsbanken bank account verification type 20  
Purchase accounts verification type 71  
Purchase accounts in electronic form verification type 73  
Cash and memo vouchers verification type 90  
VAT entries verification type 91

Westenergy Oy Ab

Vaasa 20 April 2017



Paavo Eloniemi  
Chairman of the Board



Olli Alhoniemi  
Managing Director



Ari Perälä  
Board Member



Gunnbrit Tallbäck  
Board Member



Heikki Halla-aho  
Board Member



Paavo Hankonen  
Board Member



Harri Virtanen  
Board Member



Jouko Huumarkangas  
Board Member

Auditor's Note

Auditor's Report has been issued today.

Vaasa 20 April 2017



Kjell Berts, APA

To the Annual General Meeting of Westenergy Oy Ab

TRANSLATION

REPORT ON THE AUDIT OF FINANCIAL STATEMENTS

OPINION

We have audited the financial statements of Westenergy Oy Ab (business identity code 2165379-9) for the year ended 31 December, 2016. The financial statements comprise the balance sheet, income statement, cash flow statement and notes. In our opinion, the financial statements give a true and fair view of the company's financial performance and financial position in accordance with the laws and regulations governing the preparation of financial statements in Finland and comply with statutory requirements.

BASIS FOR OPINION

We conducted our audit in accordance with good auditing practice in Finland. Our responsibilities under good auditing practice are further described in the Auditor's Responsibilities for the Audit of Financial Statements section of our report. We are independent of the company in accordance with the ethical requirements that are applicable in Finland and are relevant to our audit, and we have fulfilled our other ethical responsibilities in accordance with these requirements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

RESPONSIBILITIES OF THE BOARD OF DIRECTORS AND THE MANAGING DIRECTOR FOR THE FINANCIAL STATEMENTS

The Board of Directors and the Managing Director are responsible for the preparation of financial statements that give a true and fair view in accordance with the laws and regulations governing the preparation of financial statements in Finland and comply with statutory requirements. The Board of Directors and the Managing Director are also responsible for such internal control as they determine is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, the Board of Directors and the Managing Director are responsible for assessing the company's ability to continue as going concern, disclosing, as applicable, matters relating to going concern and using the going concern basis of accounting. The financial statements are prepared using the going concern basis of accounting unless there is an intention to liquidate the company or cease operations, or there is no realistic alternative but to do so.

AUDITOR'S RESPONSIBILITIES FOR THE AUDIT OF FINANCIAL STATEMENTS

Our objectives are to obtain reasonable assurance on whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with good auditing practice will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of the financial statements.

As part of an audit in accordance with good auditing practice, we exercise professional judgment and maintain professional skepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the company's internal control.

- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.
- Conclude on the appropriateness of the Board of Directors' and the Managing Director's use of the going concern basis of accounting and based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the company's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the company to cease to continue as a going concern.
- Evaluate the overall presentation, structure and content of the financial statements, including the disclosures, and whether the financial statements represent the underlying transactions and events so that the financial statements give a true and fair view.

We communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

OTHER REPORTING REQUIREMENTS

OTHER INFORMATION

The Board of Directors and the Managing Director are responsible for the other information. The other information comprises information included in the report of the Board of Directors. Our opinion on the financial statements does not cover the other information.

In connection with our audit of the financial statements, our responsibility is to read the information included in the report of the Board of Directors and, in doing so, consider whether the information included in the report of the Board of Directors is materially inconsistent with the financial statements or our knowledge obtained in the audit, or otherwise appears to be materially misstated. Our responsibility also includes considering whether the report of the Board of Directors has been prepared in accordance with the applicable laws and regulations.

In our opinion, the information in the report of the Board of Directors is consistent with the information in the financial statements and the report of the Board of Directors has been prepared in accordance with the applicable laws and regulations.

If, based on the work we have performed, we conclude that there is a material misstatement in the information included in the report of the Board of Directors, we are required to report this fact. We have nothing to report in this regard.

Vaasa 20 April 2017

Ernst & Young Oy  
Authorized Public Accountant Firm

KJELL BERTS

Kjell Berts,  
Authorized Public Accountant





#### Contact us

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