

Environmental Report 2014

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1. AS Tallinna Vesi in brief

- AS Tallinna Vesi is the largest water utility company in Estonia, providing water supply and wastewater disposal services to approximately 1/3 of Estonia's population.
- The Company provides water supply and wastewater disposal services to over 22,000 contractual customers and approximately 435,000 end consumers in Tallinn and its surrounding areas.
- The Company has the exclusive right to provide water and sewerage services in the Tallinn service area until the year 2025.
- A Services Agreement with 97 quality levels of service has been concluded between the City of Tallinn and the Company for providing the services.
- The Company has two treatment plants: Ülemiste Water Treatment Plant (WTP) and Paljassaare Wastewater Treatment Plant (WWTP).
- Water has been treated at Ülemiste since 1927. A new water treatment plant was built in 1979.
- The Water Treatment Plant produces an average of 60,000 m³ of water per day.
- Almost 90% of drinking water is produced from surface water. Lake Ülemiste is the main source of drinking water for the residents of Tallinn and, therefore, the lake is not a public water body. 10% of the consumers use regional ground water.
- Average water consumption in 2014 was 95 litres per inhabitant (93 litres in 2014).
- Paljassaare Wastewater Treatment Plant started operating in 1980.
- In 2014 the Wastewater Treatment Plant treated on an average 118,000 m³/day.
- The Company has laboratories for water, microbiology and wastewater, which together conducted a total of 143,000 analyses in 2014 (85,000 chemical and 11,000 microbiological analyses from drinking water and 47,000 chemical analyses from wastewater).
- The public water supply system comprises of almost 1,122 km of water networks, 18 water pumping stations and 64 ground water borehole pumping stations with a total of 93 boreholes across the entire service area.
- The public sewerage system comprises of 1,104 km of wastewater networks, 478 km of storm water networks and 174 sewerage pumping stations across the entire service area.
- AS Tallinna Vesi founded its 100% owned subsidiary Watercom in 2010 to diversify the services offered and pursue business development and growth.
- As at the end of 2014, a total of 321 employees worked for the Company and its subsidiary under continuous employment contract.
- The Company's shares are listed on the main list of Tallinn Stock Exchange.

OPERATIONAL SITES

- Head office, customer service, support services and OÜ Watercom are located in Ädala 10, Tallinn.
- Ülemiste Water Treatment Plant, water and microbiological laboratory are located in Järvevana road 3, Tallinn.
- Paljassaare Wastewater Treatment Plant, composting fields and wastewater laboratory are located in Paljassaare põik 14, Tallinn.
- Sludge composting and experimental site is located in Liikva village, Harju county.
- The catchment area of ca 1,800 square kilometres is located in Harju and Järva counties.

MISSION

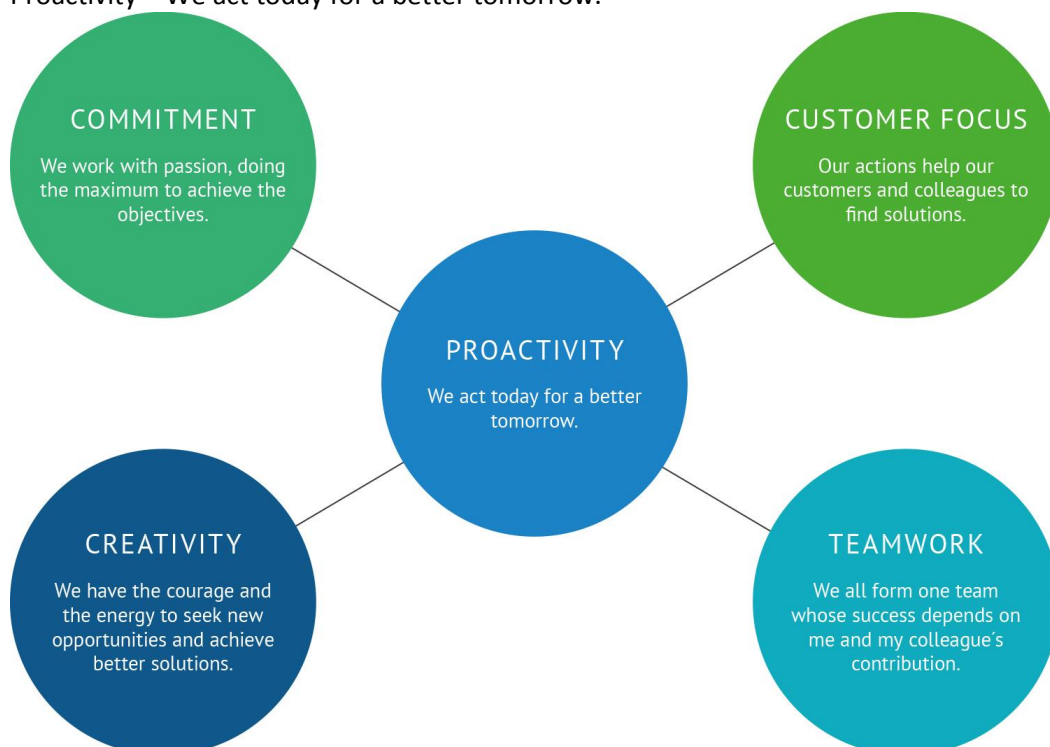
We create a better life with pure water!

VISION

Everyone wants to be our customer, employee and partner, because we are the leading company providing water services in the Baltics.

OUR VALUES

- Commitment - We work with passion, doing the maximum to achieve the objectives.
- Customer focus - Our actions help our customers and colleagues to find solutions.
- Teamwork - We all form one team whose success depends on me and my colleague's contribution.
- Creativity - We have the courage and the energy to seek new opportunities and achieve better solutions.
- Proactivity – We act today for a better tomorrow.



2. Chairman's statement

In 2014 once again we managed to improve already very high standards for services we are providing to our customers. Without a doubt the quality and operational measures are the best in Baltics. I am very proud to state that in most areas we have managed to improve our performance levels even further. This is due to efforts of our people and teams who have delivered an excellent standard of service across the entire water and wastewater value chain.

Operations performance – best ever water quality

It is imperative that we meet or exceed the levels of services in the contract we signed with the City of Tallinn in 2001. This services contract requires us to maintain a high standard of service to our customers across a range of over 90 levels of service, ensuring that we deliver a service to our customers, that is second to none.



*Karl Heino Brookes,
Chairman of the Management Board*

The water quality compliance is something that we are very proud. Whilst in 2013 99.7% of all samples were compliant with EU standards, then in 2014 the result was even better and 99.8% of the samples were compliant. To put this into context, during the year we took 2,496 samples at the customers' tap, and of these only 6 did not meet the required standards.

This high quality product and service has been recognized by our customers. From the results of our 2014 customer satisfaction survey 83% of respondents said they regularly drank tap water, compared with only 48% in 2011. Thanks to the quality of our product and the quality of our communications, more and more of our customers trust the quality of the service we are providing.

Excellent customer service – one of Europe's best performing utilities for service performance

This year we achieved a customer satisfaction rating of 85, as measured by the TRI*M index. Satisfaction with our performance is considerably higher than the European average, reaching the top 10% of European utility sector for several years. This is an excellent outcome and is a good reflection of the hard work we have done to improve all aspects of our service.

In addition to the improvements in the quality of our water and wastewater, we continue to reduce the customer risks related to potential flooding and pollution by making preventative improvements in the performance of our networks. For example, the leakage level is consistently decreasing year-on-year. Figuratively speaking, constant reduction in leakage levels means that we are saving approximately 13,000 m³ of treated drinking water a day, compared to the time 10 years ago. Compared to 2013, the saving in 2014 was 200,000 m³, which is the average amount of water being consumed in Tallinn within three days. In 2014, the level of leakages was 16.14% compared to 16.98% in 2013.

Preventive jet washing has resulted in an over 24% reduction in customer contacts related to sewer blockages and problems with storm water discharge.

Our people and teams

The key to any company's success are the people. Our teams have worked "hard and smart" in order to deliver the highest levels of service to our customers. I would very much like to thank all of our people for their dedication and flexibility during the year.

A committed, capable and motivated workforce is central to delivering our objectives, and we remain fully focused on maintaining high levels of employee development and engagement. We are always looking to develop our people and teams.

We strive to continuously improve our safety culture. The safety and well-being of our employees is paramount and we believe that everybody in AS Tallinna Vesi, both collectively and individually, has a part to play in maintaining a safe working environment. In 2014, our health and safety performance stood comparison with the performance of the best in class, and we will remain vigilant in our efforts to achieve the same very high standards in the future.

Responsible company

We acknowledge that by providing a service compliant with all requirements, we influence the quality of life of the citizens of Tallinn, neighbouring municipalities, as well as the wider environment in and around the Baltic Sea. This means that our management practices take into account the impact we have on our living environment, and our associations with different stakeholder interests. Our responsibility to all our stakeholder groups, including the environment, is a key reason for our ongoing business improvement. We are one of the initiative members of the Responsible Business Forum in Estonia. We have been recognized for our responsible way of doing business, through our activities for several years. In 2014, we were recognized with CSR Silver marking for our social, environmental and workplace practices, but also business ethics.

Not only do we aim to do the right things for our stakeholders, we also want to manage our business in the right way by operating to the highest standards of corporate governance. In 2014, for a second year in a row, we were awarded the Best Investor Relations of all the companies on the Nasdaq Balti Exchanges in all three Baltic Countries. This is the big recognition and a great honour for ourselves and Estonia. In addition, AS Tallinna Vesi was recognized as the most attractive company in the Nasdaq Balti Baltic Market. I would like to take this opportunity to thank the Nasdaq Balti in Tallinn and the bank analysts who have worked with us to help improve the quality of our interactions with the investment community.

Still attractive for shareholders

We believe our operational and financial performance still makes us an attractive investment for current and future shareholders. We will continue to work hard in our court dispute to ensure that the privatization contract is respected. Beyond this we will continue to invest in our people and systems to ensure we are well placed to grow across the region if and when the opportunity arises.

For the 2014 financial year our total revenues increased slightly by 0.3% year on year to 53.2 mln euros, mainly due to an increase in sales of water and wastewater services. However, our EPS reduced by 10% year on year to 0.90 euro per share, the reduction is primarily related to the non-monetary revaluation of the fair value of SWAP contracts.

In June 2014, we paid a dividend of 0.90 cents per share, an increase of 3.4% year-on-year. This is in accordance with our dividend policy, which is to increase dividends by a minimum of CPI each year.

Outlook

Given the slow progress in our court cases and the lack of transparent regulatory practice, the outlook for the company remains very uncertain. The Estonian authorities have been unwilling to enter into any meaningful discussions over the privatization contracts, therefore it appears that the company will be engaged in a long court process, the duration of which is outside of the control of the company. This ongoing dispute and the unstable regulatory environment severely limit our growth opportunities.

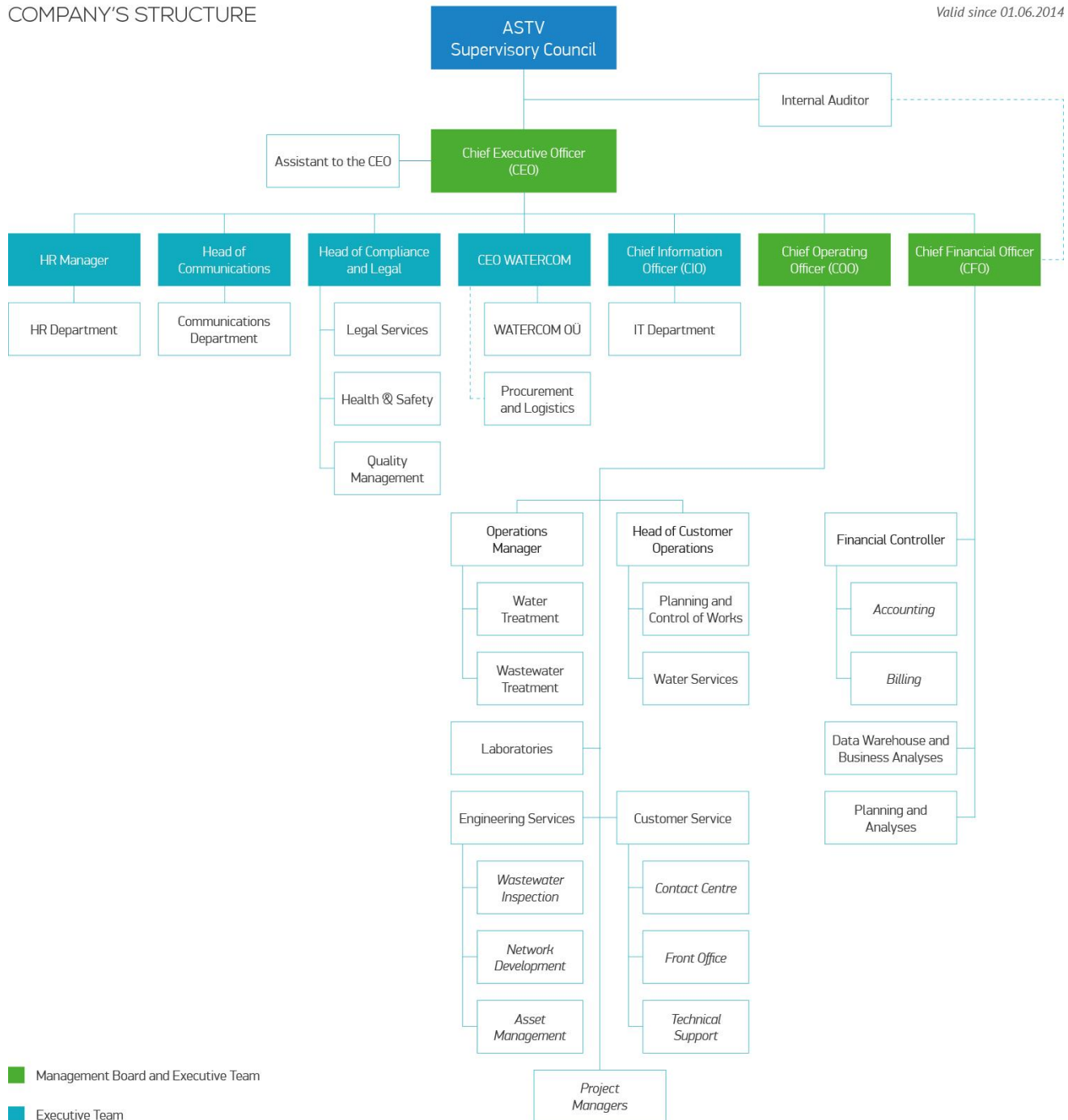
In addition to the local court case, in October 2014, AS Tallinna Vesi and its shareholder United Utilities (Tallinn) B.V. commenced the arbitration proceeding against the Republic of Estonia for the breach of the Agreement on the Encouragement and Reciprocal Protection of Investments between the Kingdom of The Netherlands and the Republic of Estonia. As the tariff dispute has lasted very long time with no outcome, international arbitration is the other possibility to solve the dispute.

Regardless of the ongoing tariff dispute, our primary focus in 2015 will be to continue providing very high quality service to our customers, and seeking further efficiencies within our main services area in Tallinn. We are committed to retain our place as the leading water and wastewater company in the Baltic region.

We are very grateful that besides our own professionals we can use technical support and know-how from one of our major shareholder United Utilities, which is also one of the leading water and wastewater companies in UK. Finally, I would like to thank my colleagues in AS Tallinna Vesi, Watercom OÜ and United Utilities, and all our suppliers and business partners for all their expertise, energy and support in serving our customers during the past year. It is because of all your efforts that we are able to report a level of operating and service performance that is second to none. I look forward to our continuing success in the year ahead.

COMPANY'S STRUCTURE

Valid since 01.06.2014



3. Company's objectives

TABLE 3-1: Company's general objectives 2014

FIELD Objective	12 months	Objective in 2014	Status
Customer service			
Customer satisfaction with service 10% higher than European manufacturing companies	85%	≥ 64%	achieved
The number of written customer complaints is less than 120	76	<120	achieved
People			
High level of employee devotion (according to RAOU 'readiness to recommend' index)	71%	≥ 64%	achieved
No employment injury	2	0	not achieved
Operational performance			
0 non-compliances resulting from Service Agreement (except WS7), environmental and health requirements, as well as legislation	0	0	achieved
Drinking water quality at least 99.31 %	99.80%	≥99.31%	achieved
Leakage rate does not exceed 17.5 %	16.14%	<17.5%	achieved
Wastewater Treatment Plant output - 100 % compliance with the requirements	100%	100%	achieved
Financial			
Operating profit (EBIT) increased.	24 830 000 EUR	26 304 000 EUR	not achieved

TABLE 3-2: Environmental objectives 2015

Objective	Indicator
Compliance with all legal standards, environmental permits and requirements of the Services Agreement.	0 non-compliances (except for LoS WS7)
Sub-contractors are aware of all significant environmental principles and aspects of the Company.	0 environmental non-compliances by sub-contractors
Reduced number of clean water leakages.	≤ 17.0%
Compliance of pollution parameters is achieved at the Wastewater Treatment Plant outlet.	0 non-compliances
Improve the energy efficiency of technological processes.	WWTP MWh per 1 unit < 2014
Improved water quality in rivers of Ülemiste catchment area and better condition of fish.	All fish passes are built by due date.
Increase the environment and Company's activity related awareness of various stakeholders (employees, after-growth, consumers and community), in order to increase and maintain Company's good reputation (image).	1. ≥2 doors open days/yr 2. ≥25 guided tours/yr 3. ≥1500 children/yr have participated in kindergarten visits 4. ≥1 water campaign
Coagulant unit cost and concentration of total phosphorus (P_{Tot}) in the wastewater discharged to the outlet is reduced by the end of 2016.	2016 coagulant unit cost < 2014 ($Fe_2(SO_4)_3$ kg/influent P_{Tot} (kg). 2014 average unit cost was 9,5 kg $Fe_2(SO_4)_3 / P_{Tot}$)
By the end of 2018 the evitable sudden discharge of untreated wastewater to the sea is minimized.	Amount of untreated wastewater discharged to the sea in 2018 (th m ³ /yr) < 125 th m ³ /yr (2010-2014 average)

4. Environmental and community policy

We are the largest water company in Estonia. Our activity influences nearly one third of Estonia's population. We acknowledge that by providing service compliant with all requirements, we influence the quality of life of the citizens of Tallinn, neighbouring municipalities as well as the Baltic Sea natural habitat and its surrounding areas. Therefore we take into account the impact we have on surrounding living environment, and association with the different stakeholder interests.

- We act responsibly – we take into consideration our impact on the natural habitat, health and quality of life of the residents as well as interests of different stakeholders.
- We fulfil all legal requirements, but we are dedicated to doing more than required.
- We value the natural environment we operate in and therefore use natural resources sparingly and continuously seek ways for a more sustainable consumption. In order to help shaping an environmentally conscious way of thinking in our community, we encourage and support others accordingly.
- We wish to give our contribution to those who need more help and attention in the community to experience the joy of success.
- We strive to be a good neighbour in the community by supporting and encouraging activities related with environmental awareness and healthy life style.

5. Quality policy

We aim to ensure that our customers have drinking water with a very high quality and to discharge wastewater and storm water in an environmentally wise manner.

- We act responsibly, emanating from the principles of social responsibility and ethics, being aware of the impact of our activity on public health and life quality.
- Management is based on the principle of continuous improvement throughout the business.
- We do more than required by the legal acts and we follow the best practices.
- We are a good partner for our customers. We are not afraid to give promises and take responsibility when we fail to keep our promises.
- We believe that it is only by involving our various stakeholders and through open and honest dialogue that we can strive for continuous development to improve our services, quality and work organization.
- We believe that behind every successful company there are inspired and competent employees. Therefore, we consider very important to support and acknowledge, and involve them in our activities and decision making processes.
- We provide our stakeholders with relevant and timely information.

6. Our customers

We provide water supply and sewerage services to more than 22,000 contractual customers and 435,000 end users in Tallinn and its surrounding areas.

Our wish is to provide an uninterrupted and high quality service to our customers. Therefore, we continued to make our best efforts in 2014 to maintain the very good quality of drinking water and to further improve the service reliability. The main focus was on enhancing customer awareness and quality of resolving customer contacts in order to reduce the customers' need for repeated contacts.

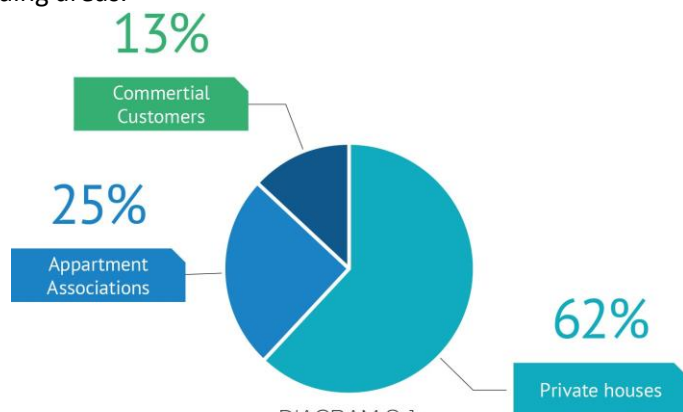


DIAGRAM 6-1:
Company's customer classification 2014.

Customer satisfaction survey results indicate that feedback on our services continues to be very positive. However, continuous reinforcement of the emotional side of our customer relations is still a challenge to us. Regardless of the excellent results (in comparison with customer satisfaction in the European utility and production sector) we will try to maintain the high level achieved and continue to improve customer service also in 2015.

Customer feedback

For the seventh year in a row, an independent market research company TNS Emor carried out a survey among our customers and end users in order to analyse their satisfaction with services provided by the Company. A total of 900 customers and end users were surveyed to map the changes in the strength of our customer relations and in the factors influencing it as well as to receive feedback on our activities.

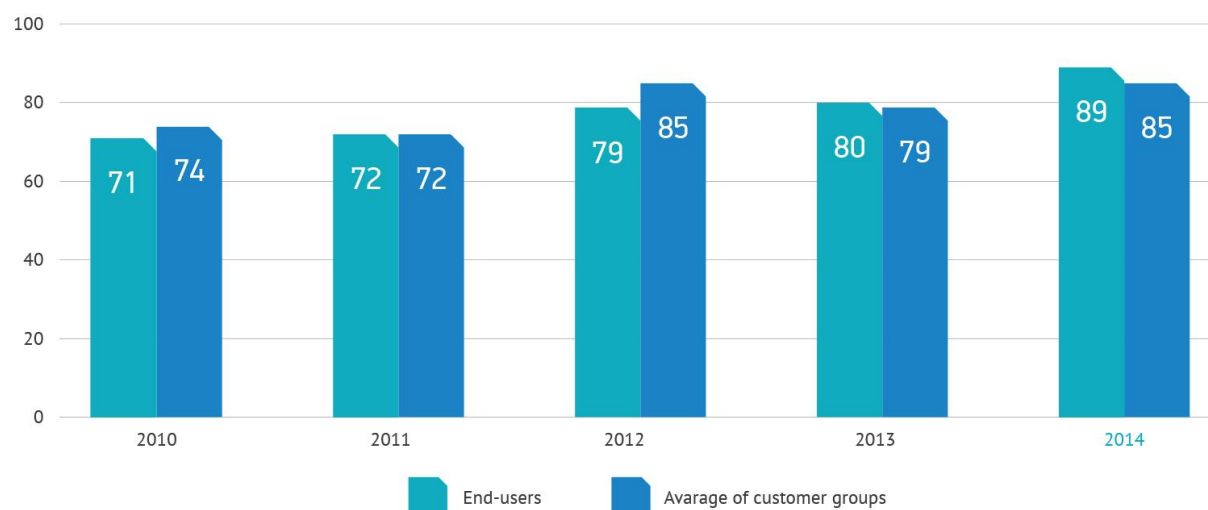
Satisfaction was measured on the basis of the TRI*M (Measuring, Managing and Monitoring) method developed by the research company to characterize the strength of customer relationships and to allow comparison with other companies. This model focuses on three elements:

- TRI*M index, which measures the strength of customer relationships and comprises further four elements – general satisfaction, recommendation, repeated use and usefulness/necessity of services or products;
- TRI*M typology of customer relationships, describing the satisfaction and loyalty of customers;
- TRI*M grid analysis to highlight the strengths and weaknesses of a company.

The databases of Global TRI*M Centre serve as the source for international comparisons by collecting the results of all customer surveys carried out by various service providers using the TRI*M methodology. The global database contains feedback from almost 9 million customers to their partners.

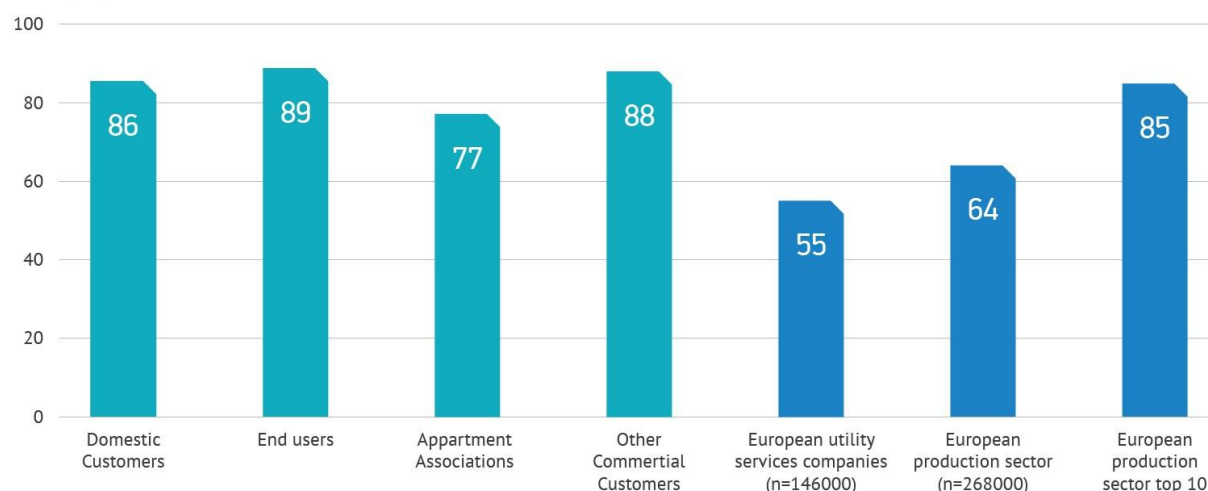
Survey results show that the average satisfaction indicator among our customers in 2014 is 85 points. Customer satisfaction survey results show constant raising tendency across the years.

DIAGRAM 6-2: Company's customers and end users satisfaction in 2010-2014.



Compared to other utility companies in Europe, the quality of our Company's customer relationships can continually be considered to be very good (European index for the utility companies is 55), standing out with considerably higher ratings than average in terms of customer satisfaction.

DIAGRAM 6-3: Satisfaction among Company's customers and end users, in comparison with Europe, in 2014.



The year 2014 saw a continuous positive trend in terms of consuming tap water for drinking – within the last five years, the percentage of tap water drinkers has increased from half of end users in all segments to 80-90%. Our campaign "Drink tap water", which has been carried out for several years now, has definitely played an important role here. It was also the most well noticed media message among all customer segments. The improving trend of tap water drinking is definitely related to the improvement of water quality and taste as well. The survey results also confirm the increased satisfaction with water quality in the assessment given by the end users, over the last year especially in Maardu-Muuga area.

TABLE 6-1: Customer satisfaction with different aspects of services in 2013-2014, on a 5-point rating scale.

Aspect	Commercial customers		Private customers	
	2013	2014	2013	2014
Taste of water	3.9	4.1	4	4.2
Odour of water	4	4.2	4.1	4.3
Clarity of water	4.1	4.2	4.1	4.2
Stable water pressure	4	4	3.9	3.9
Low number of emergencies and interruptions	4.1	4.2	4.1	4.2
Price/quality relationship	3.2	3.5	3.2	3.5
Accuracy and clarity of invoices	4.4	4.4	4.2	4.3
Customer information line	4	4	3.9	3.9
Communication by e-mail	4.1	4.2	4.1	4.0
Self-service	4	4.1	4	4.1

Assessment given to the taste, odour and clarity of water have improved compared to the last year, both among commercial and private customers. Also the assessment given to the price/quality ratio has improved.

In 2015, problem-solving will continue to be the place to improve ourselves. Although the number of customer complaints has dropped year by year, first of all due to the preventive actions, fixing the problems in the manner most suitable for the customers is still important. We will also try to share more information about our activity and keep customers better informed about the problem solving process.

7. Environmental management system

Our Company's environmental activity is in compliance with the requirements of the international environmental management standard ISO 14001 and EU Eco Management and Audit Scheme (EMAS) Regulation.

The environmental management system forms a part of the Company's management system as we strive to make the links between the Company and the environment part of our strategy and to take them into account in our everyday operation. The objective is to avoid or at least minimize environmental pollution via integrating the environmental management system elements into our daily activities. This will enable us to achieve continuous improvement and carry out a systematic control over our environmental performance.

The basis for the environmental management system is the identification of both negative and positive significant environmental aspects and impacts, which form the basis for determining the Company's environmental objectives and tasks for improving the performance. Significant environmental aspects are such activities which, in contact with the surrounding environment, most influence the nature, quality of services, co-operation between stakeholders, health and life quality of the residents, and our business performance.

An overview of the significant environmental aspects and impacts of our Company and the progress against the environmental objectives and tasks is presented in the next chapters of this Environmental Report.

Management of the environmental system has been established in accordance with the Company's structure. The main responsibility for ensuring and improving the functioning of the environmental management system lies with the senior management and the heads of structural units. Unit managers involve their employees in setting and fulfilling environmental objectives and tasks. We measure, monitor and assess the indicators of our environmental activities at least once a quarter, on the basis of which we annually compile an environmental report available for the public.



8. Compliance of the activities with environmental requirements

Significant environmental aspect	Objective
Environmental requirements	Our daily operation is in compliance with high quality requirements
Tasks for 2014	
To comply with all legal standards and requirements of the Services Agreement - > 0 non-compliance except for WS7 - interruptions	
To ensure the awareness among the sub-contractors of significant environmental aspects of the Company - >1 information day or opening meeting	

Environmental legislation

The minimum requirement of environmental management system is compliance with environmental legislation. All improvements to the environmental management system must also be in accordance with the requirements and restrictions set out in applicable legislation. To a large extent our Company's environmental activities are regulated by requirements arising from EU as well as national and local government legislation.

At the EU level this means compliance with the EU Water Framework Directive (2000/60/EC). At the national level, compliance with the Water Act, Public Water Supply and Sewerage Act, Waste Act, Chemicals Act, Ambient Air Protection Act and subordinate acts based on these acts shall be ensured. At the local level we are obliged to comply with different rules and requirements both in Tallinn and its surrounding municipalities.

Amendments to the requirements and legislation are being constantly monitored and managers responsible for the implementation of the required changes are notified thereof each month.

In co-operation with the Estonian Water Works Association, we continue to participate in the approvals of the new draft acts concerning water economy and environment by submitting our opinions and making amendment proposals with regard to the draft legislation under discussion. Together with the Estonian Water Works Association we have participated in the working groups for developing legislation related to water economy and environment and expressed our opinions with regard to draft legislation directly to the relevant ministries (e.g. Ministry of Environment, Ministry of Justice, Ministry of Economic Affairs and Communications).

In 2014, we did active preparation work with regard to the following important draft legislations: amendment drafts of the Public Water Supply and Sewerage Act, the Atmospheric Air Protection Act and, continually, the Metrology Act; as well as the regulations by the Ministry of Environment, related to the Water Act, such as the "Specified requirements for the damming up of a water body, environmental monitoring, protection of water biota, dam, removing of damming and lowering the level of water level, related to the damming, and the methodology of identifying the ecological minimum amount of flow" and "Procedure of issuing, amending and repealing the permit for a special use of water and temporary permit for a special use of water, list of materials required to apply for the permit and permit templates."

Environmental permits

We act in accordance with the conditions set out in the environmental permits issued to the Company and observe the precepts set out by authorities. The main licensing authority for us is the

Environmental Board's Harju-Järva-Rapla regional department, who has issued the following environmental permits to us:

- 4 permits for a special use of water (details on page 29);
- 1 waste permit (details on page 48);
- 2 ambient air pollution permits (details on page 55).

In 2014, we performed in conformity with all of the conditions set forth in applicable environmental permits. The matters related to the environmental permits, e.g. their extension, are resolved in cooperation with the Environmental Board.

Due to the Accession Treaty concluded between the EU and Estonia and compliance with the requirements of the Directive 98/83/EC regulating water quality, § 13¹ of the Water Act became invalid starting from 2014. Therefore, we have ensured the compliance of drinking water with quality requirements in Harku small town area and completed the process of transferring the area to drinking water supply from Ülemiste Water Treatment Plant, in co-operation with Harku Municipality Government and Northern Service of the Health Board. In 2013, we constructed the connecting network and in May 2014, a booster pumping station was built.

Additional information is available on the Health Board's homepage www.terviseamet.ee.

Requirements of the Services Agreement

In 12 January 2001 we concluded a tripartite Services Agreement with the City of Tallinn and investors, which, among other things, obliges us to comply with 97 Levels of Service. This makes us the most regulated water undertaking in Estonia. Our activities and levels of services are assessed once a year by an impartial inspection body – Supervisory Foundation for the Water Companies in Tallinn – to whom the Company annually, i.e. by the end of the first quarter, submits a report on compliance with the levels of service.

96 levels of service out of 97 set out in the Services Agreement were met in 2014. One non-compliance was related to the interruption to water supply lasting for more than 12 hours (item WS7 of the Services Agreement). 7 customers were left without water supply for 13 hours. At the same time, continuous improvement of the service quality and achievement of better results than required are still our main objectives.

Requirements to contractual partners

As strict requirements apply to our activities, we consider it to be very important that also our suppliers and contractors meet both environmental and work environment requirements. We have established several criteria in our procedures which enable us to make sure that our partners follow the requirements. Providers of construction works must confirm that they comply with occupational safety and environmental protection requirements at our construction sites. Our specialists as well as the supervision staff of the Company's subsidiary OÜ Watercom monitor the suppliers/contractors activities with regard to health and safety and environment at sites.

To improve the quality of feedback on the completed works and provided services, incl. on complying with the environmental and work environment related requirements, we have changed the system for assessing the suppliers. The new supplier assessment system enables to take improving actions, if

necessary, on time and ensures feedback on performance from both parties. This new supplier assessment system supports our responsible operating.

In order to improve the awareness of suppliers, opening meetings were carried out for construction and reconstruction sites in 2014 (except for the constructions of individual connection points) by our subsidiary OÜ Watercom. The aim of the opening meetings is to additionally introduce to the contractors the Company's objectives, contractual requirements, construction standards and the quality, environment and occupational health and safety requirements applicable to the Company before the commencement of the construction works. In addition, quality, environmental and safety requirements are separately introduced on the site right before the works start, and this is confirmed with a signature.

Management system control and audits

In 2014 various authorities monitored the compliance of our Company's activities, incl. environmental activities, with the requirements. The Crisis Management Office of the Rescue Board's Northern Rescue Centre made an onsite inspection for ensuring chemical safety, Technical Surveillance Authority completed the surveillance reg. chlorine containers, and the Health Board carried out a regular check as usual. Estonian Accreditation Centre checked the compliance of laboratory activity and management system with ISO 17025 standard requirements. In addition to supervisory authorities, the Company's compliance with environmental legislation and Services Agreement requirements as well as with intra-Company requirements are also monitored throughout internal and external audits.

As a result of internal audits carried out in 2014, our internal auditors put forward a total of 35 non-conformities and 66 improvement proposals which provide a good input to managers for improving the management system.

In spring 2014, a recertification audit was carried out in the Company by accredited certifier Det Norske Veritas in order to evaluate the compliance of the management system with the requirements of ISO 9001, ISO 14001, OHSAS 18001 standards and with the Regulation (EC) No 1221/2009 (EMAS).

Auditors highlighted in their report several positive observations regarding Company's activity. Among other things, audit report pointed out a positive fact that the Company has the best investor relations in the Baltics (Nasdaq Balti).

As a result of external audit Det Norske Veritas confirmed the compliance of the management system and EMAS report with the requirements and issued respective compliance certificates which are valid for 3 years.

9. Company's ecological footprint

Ecological footprint method enables to evaluate the environmental impact of the activities of companies and states in a complex manner. The basis for the calculation of ecological footprint is land as a limited resource used by people for their needs.

Ecological footprint is a measure of human demand for the use of natural resources for their activities. Ecological footprint assesses the use of space accompanying the lifecycle of a product or service and can be measured in hectares per year (hereinafter ha per year). The Ecological Footprint Index demonstrates how much water and productive land is occupied for producing, using and absorbing materials to be consumed.

The calculation of a company's ecological footprint is based on two simple facts:

- It is possible to monitor and detect the majority of the resources consumed by the company and several additional outputs;
- It is possible to measure the majority of the resources and waste flows in terms of biologically productive area which is required for producing these resources and for disposing and neutralizing waste.¹

Ecological footprint factor² is a conversion unit which helps to equalize the measured source data so that the result would be easily understandable and comparable.

Environmental impact measured on the basis of the ecological footprint method

Ecological footprint is calculated based on the methodology developed by the Estonian Fund for Nature. The calculation takes into consideration 11 different components and corresponding factors. The components have been divided into five fields (water, waste, electricity, heating, transport). In order to get a better comparison, the ecological footprint per one employee has been pointed out separately.

It must be emphasized that it is fair to compare the ecological footprints per person of various companies only in case the companies provide similar products or services and the ecological footprint has been calculated for the same indicators.

Summarized table of the Company's ecological footprint

Annually, the Company has the strongest impact on the environment through its use of electricity, followed by the use of heat energy and waste production. The use of electricity and heat energy are in a close and inevitable connection with the Company's core activity and with the expansion of the activities also the ecological footprint inevitably increases. Efficient and sustainable use of electricity and heat energy was one of the priorities in 2014. Consequently, the ecological footprint caused by the use of electricity and heat energy has decreased and thus positively affected the total ecological footprint of the company. Table 9-1 presents the size of footprints caused by the consumption of various ecological footprint components. We will have a closer look on the consumption of all resources in the following chapters of the report.

¹ Ecological Footprint of Nations

² Ecological footprint factors were taken from Chambers et al, Sharing Nature's Interest, 2000 (available in ELF library)

TABLE 9-1: Summarized table of the Company's ecological footprint

Aspects which serve as the basis for calculating the ecological footprint	Year	Consumption/ production (rounded)	Ecological footprint per employee, ha/y per employee	Ecological footprint, ha/y	Direction of change*
Water					
1. Water consumed, m ³	2014	514 180	0.1	41.1	▲
	2013	455 646	0.1	36.5	
Waste					
2. Recycled paper, t	2014	6	0.05	14.1	▲
	2013	4	0.04	10.8	
3. Recycled metal, t	2014	12	0.05	13.7	▼
	2013	14	0.10	14.9	
4. Concrete (to a landfill), t	2014	62	0.02	6.2	▲
	2013	53	0.02	5.3	
5. Mixed municipal waste (to a landfill), t	2014	93	1.25	374.8	▼
	2013	97	1.30	392.7	
Electricity					
6. Electricity from oil shale, MWh	2014	37 188	20.0	5 987.3	▼
	2013	39 709	21.8	6 393.1	
Heat energy					
7. Heat energy produced from natural gas**, MWh	2014	5 154	1.6	483.4	▼
	2013	5 160	1.7	485.0	
Transport for people					
8. By car, km	2014	2 745 044	0.5	164.7	▼
	2013	2 973 248	0.6	178.4	
9. By plane, km	2014	326 203	0.09	26.2	▲
	2013	211 080	0.10	19.0	
10. By bus, km	2014	40	0.000004	0.001	▼
	2013	1 442	0.0001	0.04	
11. By ship, km	2014	3 188	0.0001	0.03	▲
	2013	176	0.00001	0.002	
Total:	2014		23.7	7111.5	▼
	2013		25.8	7535.7	

* ▲ indicates the growth of the footprint and ▼ indicates decrease of the footprint
 ** All of the produced and purchased heat energy is produced from the natural gas

10. Treatment processes

Water treatment processes

1. Surface water is collected to Lake Ülemiste and directed to Water Treatment Plant.
2. Raw water passes through screens and microfilters, which remove algae and suspended solids from the water.
3. Water is channelled into reservoirs, where a mixture of ozone and air is injected into the water to oxidize organic substances.
4. A water treatment chemical coagulant is added to clarify the water.
5. During the clarification phase suspended solids, chemical flocks and precipitates are removed from the water.
6. Water passes through filters. In summer, dependent on the quality of raw water coming into the plant, activated carbon may be added in order to remove any remaining particles and to improve the taste of the drinking water.
7. Chlorine is added to the water for disinfection purposes.
8. The water is directed to drinking water reservoirs, from where it is pumped to the city water network in accordance with demand.

Wastewater treatment processes

1. Wastewater collected through the sewerage network is directed into the Main Pumping Station. Storm water is also collected into the combined sewerage system and directed to the Main Pumping Station.
2. Storm water collected in the areas of separate sewerage network is led to the storm water outlets through a separate storm water network.
3. The first stage of wastewater treatment is the mechanical treatment stage. In that stage, wastewater is screened to remove larger solids and the grit removal tanks remove grit and sand from the wastewater.
4. Smaller solid particles are removed in the primary sedimentation basins, formed sludge is removed from the process.
5. Coagulant is added to the wastewater in order to chemically remove phosphorus.
6. For biological treatment, wastewater is conducted to the aeration tanks, where the vital activity of various bacteria (activated sludge) helps to remove nitrogen and biologically decomposing substances from wastewater. To ensure a living environment suitable for the bacteria and to make their work more efficient, air and additional carbon in the form of methanol are injected.
7. Activated sludge that has formed in aeration tanks is settled in the secondary sedimentation basins.
8. Additional volume of nitrogen and biodegradable pollutants are removed from wastewater in biofilter as a result of the vital processes of the bacteria. Additional carbon in the form of methanol is added to increase the efficiency of the work of the bacteria.
9. Treated wastewater i.e. effluent is pumped via a deep sea outlet into the sea.
10. Sludge removed during the different phases of the treatment process is pumped to the sludge treatment unit.
11. Sludge is digested and stabilized in anaerobic digesters where bacteria make the organic matter decompose.
12. The biogas created in the course of anaerobic sludge digestion is used for the technological process and heating the plant buildings.
13. The stabilized sludge is dried and mixed with peat.
14. The outcome – sludge mixture with high nutrient content - is used in cultivation.

11. Drinking water quality

Environmental aspect	Objective
Water treatment	Our main operational indicators are under control and all objectives achieved
Tasks for 2014	
Drinking water quality in all service areas is in compliance for at least 99,31% with the Regulation No 82 issued by the Minister of Social Affairs	
% of leakages is below 17.5%	

Drinking water quality is required to comply with the Regulation No 82 “Quality and Control Requirements and Analysis Methods for Drinking Water” issued by the Minister of Social Affairs on 31 July 2001 (hereinafter referred to as the Regulation No 82) originating from the Estonian Water Act and the European Union Drinking Water Directive 98/83/EC.

An increase in the number of people drinking tap water continued as a positive trend also in 2014 – in the previous years the proportion of those drinking tap water has grown from half of the end-users to 80-90%. The growing trend of drinking tap water is definitely based also on the improvement of tap water quality and taste, although those have not gone through huge changes over a year, still the ratings given by the end-users have constantly been improving year-on-year.

The water quality is monitored following the Drinking Water Quality Monitoring Programme approved by the Health Board. The Programme for the years 2013-2015 determines the sampling spots, sampling frequency as well as the parameters to be analysed. Samples are taken from the raw water (Lake Ülemiste, the catchment area thereof, and ground water) treatment process, bore-wells, as well as the customer taps.

Conditions for using ground water have been determined in the permits for a special use of water HA0132 (L.VV/323855), TL0687 (L.VV/322982), HA0382 (L.VV/320972) and HA1106 (L.VV/320980) issued to the Company. Although the usage of ground water is limited by the permits for a special use of water, it is possible to cover the ground water demand and still have sufficient reserves to partially replace some of the supply by ground water in case there should be any problems with regard to the drinking water supplied from Ülemiste Water Treatment Plant.

Drinking water quality analyses are carried out by the Company’s water and microbiology laboratory, which is one of the largest water laboratories in Estonia. The quality of the analyses is guaranteed by the certified collectors and laboratories accredited by the quality management system (EVS-EN ISO/EC 17025 standard), using modern equipment and employing professional staff. In 2014, our water and microbiology laboratory performed a total of 97,000 analyses.

Treated water quality at Ülemiste Water Treatment Plant

Almost 90% of our consumers are supplied with drinking water produced out of surface water. Although Lake Ülemiste is the main drinking water source for Tallinn, the natural catchment area of the lake itself is small. To provide sufficient water source, an extensive water catchment system has been established. The quality of surface water is mostly affected by the weather and geographical location of the catchment area. Thus, the entire water catchment system is affecting the quality of surface water. Our main challenges are caused by the weather – floodings and changes in the raw water due to long winter periods.

In 2014, the treated water quality at Ülemiste Water Treatment Plant was compliant with the requirements of the Regulation No 82.

TABLE 11-1: Drinking water quality in Ülemiste Water Treatment Plant 2010-2014

Parameeter	Ühik	Keskmise tulemus					Sm määrus nr 82, EL direktiiv 98/83/EC
		2010	2011	2012	2013	2014	
Odour	points	1	1	1	1	1	Acceptable to consumer
Taste	points	1	1	1	1	1	Acceptable to consumer
Turbidity	NTU	0.12	0.11	0.12	0.11	0.07	1.0
Colour	Pt mg/l	2	3	<3	<3	<3	Acceptable to consumer
Dry residue	mg/l	263	258	256	261	261	
pH		7.31	7.3	7.3	7.26	7.42	6.5 – 9.5
Conductivity	µS/cm	373	366	366	373	381	2500
Alkalinity	mg-ekv/l	2.76	2.83	2.79	2.93	2.93	
Total hardness	mg-ekv/l	3.95	3.87	3.86	3.96	4.04	
Temporary hardness	mg-ekv/l	2.76	2.83	2.79	2.93	2.93	
Permanent hardness	mg-ekv/l	1.2	1.07	1.09	1.02	1.10	
Permanganate index (COD _{Mn})	O ₂ mg/l	3	3	3.2	3.1	2.9	5.0
Total organic carbon (TOC)	mg/l	6	5.9	6.2	5.8	5.7	Without unusual changes
Free CO ₂	mg/l	16	16	16	18	13	
Carbonates CO ₃ ²⁻	mg/l	0	0	0	0	0	
Bicarbonates HCO ₃ ⁻	mg/l	168	171	170	180	180	
Chlorides Cl ⁻	mg/l	26	25.1	26	26	25	250
Sulphates SO ₄ ²⁻	mg/l	28	25	26	23	29	250
Orthophosphates PO ₄ ³⁻	mg/l	<0.01	<0.02	<0.02	<0.02	<0.02	
Fluoride F ⁻	mg/l	0.08	0.09	0.1	0.09	0.11	1.5
Nitrates NO ₃ ⁻	mg/l	1.9	2.9	3.1	2.6	2.6	50
Ammonium NH ₄ ⁺	mg/l	0.005	<0.006	<0.006	<0.006	<0.006	0.5
Calcium Ca	mg/l	65	65.7	67	66.4	67.4	
Magnesium Mg	mg/l	7.15	7.3	6.6	6.9	7.5	
Total iron Fe	µg/l	<10	<10	<10	<10	<10	200
Manganese Mn	µg/l	12.5	13.2	5.3	12.2	3.1	50
Aluminium Al*	µg/l	108	101	110	79	73	200
Sodium Na	mg/l	6.1	6.6	6.3	6.1	5.9	200
Potassium K	mg/l	2.7	2.8	2.7	2.6	2.5	
Chromium Cr	µg/l	0.62	0.65	0.59	0.67	0.69	50
Copper Cu	µg/l	0.42	0.4	0.52	0.58	0.57	2000
Mercury Hg	µg/l	<0.05	<0.1	<0.1	<0.1	<0.1	1
Lead Pb	µg/l	0.01	<0.02	<0.02	0.02	0.02	10
Selenium Se	µg/l	<0.4	<0.7	<0.7	<0.7	<0.7	10
Zinc Zn	µg/l	0.3	0.51	0.43	0.55	0.47	
Acrylic Amide	µg/l	0.016	0.014	0.015	0.015	0.014	0.1
Chloroform	µg/l	25	24	26	24	23	
THM	µg/l	30	29	29	29	28	100*
Enterococci	CFU/100ml	0	0	0	0	0	0
No of colony forming units at 22°C	CFU/ml	0	0	0	0	0.5	Without unusual changes
Coliform bacteria	CFU/100ml	0	0	0	0	0	0
<i>Escherichia coli</i>	CFU/100ml	0	0	0	0	0	0
<i>Clostridium perfringens</i>	CFU/100ml	0	0	0	0	0	0

* Residual aluminium has been calculated as per the results of in-depth analysis using ICP/MS method

Surface water quality

The water quality in surface water sources is monitored in line with the programme established based on the conditions of the permit for a special use of water. In 2014, the quality of raw water in the treatment system complied with the class A2 requirements of the European Council Directive 75/440/EC.

To ensure compliance, the raw water quality indicators are analysed once a day at the intake to the treatment system. The raw water pollution indicators, such as total phosphorus and total nitrogen, are analysed once a week. Furthermore, an in-depth analysis of raw water is carried out once a month in accordance with the Drinking Water Quality Monitoring Programme.

Based on the results of the analyses we assess the changes and processes in the catchment area and decide upon the supplementation of the water supply in the lake.

TABLE 11-2: Permanganate oxygen demand in raw water 2010-2014 O₂, mg/l

	2010	2011	2012	2013	2014
COD _{Mn}	9.7	9.4	10.1	10.1	8.9

In 2014, the permanganate oxygen demand was significantly lower than in previous year. Also the water colour parameters in raw water were lower.

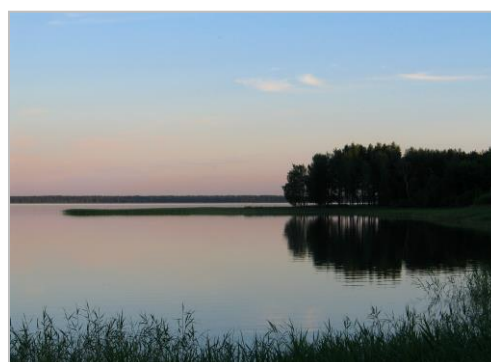
TABLE 11-3: Raw water colour 2010-2014, Pt mg/l

	2010	2011	2012	2013	2014
Colour	54	56	46	43	33

In 2014, raw water quality was exceptionally good, which brought about the reduced chemical consumption and contributed to achieving the good drinking water quality. This was caused by dry summer, due to which the water did not wash nutrients from soil into water bodies and surface water quality improved across the whole water catchment system.

Ülemiste sanitary protection zone

Lake Ülemiste is the drinking water source for more than 400,000 people living in Tallinn and its nearest surroundings. To protect the water body providing drinking water, Ülemiste sanitary protection zone was formed in line with the Water Act § 36 (1). Pursuant to this act, protection shall be provided to the area (where stricter than usual environmental requirements and consequent restrictions apply) of water bodies, which are used for supplying drinking water, and the surrounding sanitary protection areas.



Lake Ülemiste

The sanitary protection zone includes the lake, the water catchment facilities thereof, the bank reinforcement facilities and the area surrounding the lake, which must be kept in its natural condition. The sanitary protection zone is marked and protected with a fence. Under the Water Act, entry into the sanitary protection zone is permitted only for persons performing duties related to environmental

supervision and health protection, servicing of water catchment facilities and forest maintenance, mowing of grass plants and water monitoring.

Over the last years, human and development activities, construction of motorways and airport activity have become more intensive in the areas surrounding the lake and this has increased the environmental risks on a drinking water source.

As Ülemiste Water Treatment Plant does not have an alternative raw water supply source today, we deem it extremely important to ensure natural balance around the lake. Free public access to the drinking water reservoir may increase the risk of polluting the water source and deteriorate water quality.

Efficiency of the water treatment process

Ülemiste Water Treatment Plant treats water applying a treatment scheme that is used world-wide. We use ozone in the treatment process to improve the quality, odour, colour and taste of water and this has enabled us to reduce the volume of chlorine to approximately a tenth over a decade. Drinking water must be safe and must not contain any pathogens. Therefore we add small amounts of chlorine in the drinking water, which is completely safe for human health, but at the same time an extremely effective measure to protect water against bacteria on its way through the network up to the customer taps. In 2014, the water quality in the lake was exceptionally good, which consequently reduced the cost of chemicals and ozone used.

Depending on the surface water quality of Lake Ülemiste, the law determines the physicochemical treatment of surface water to ensure the quality of drinking water – prechlorination, coagulation, sedimentation, filtering and disinfection.



Ozonators in Ülemiste WTP

To improve the water treatment process performance, four filters were regenerated in 2014. To reduce the load of filters, a water recirculation system of clarifiers' sludge catcher was built at the old water treatment plant, which enables additional treatment of water with high turbidity after flushing process. In order to improve the reliability of ozonation process, critical spares in ozonators' power circuits were replaced.

Ground water quality

Approximately 10% of consumers in Tallinn are supplied with water produced from the Cambrian-Vendi and Cambrian-Ordovician aquifers. Ground water is supplied in the districts of Nõmme, Laagri, Merivälja, Pirita and Tiskre in Tallinn, Tiskre village in Harku Rural Municipality and City of Saue. Harku country town, and the settlements of Muuga and Kallavere in the City of Maardu have been taken to surface water supply.

According to the EU Water Framework Directive (2000/60/EC), the qualitative or chemical condition of ground water is regarded to be good if the concentration of pollutants does not indicate an inflow of salty water or other water, nor does it exceed the respective quality standards. In 2014, the quality of drinking water at the borehole pumping stations complied with the requirements of the Regulation No 82, issued by the Minister of Social Affairs. There were no cases of ground water

pollution or potential pollution demanding the notification of the City of Tallinn and the Health Board.

We monitor all of the quality parameters established in the permits for a special use of water and the drinking water quality monitoring programme, and if needed, the ground water goes through a treatment process. We monitor the quality of treated ground water (concentration of iron, manganese and ammonium) in 20 ground water pumping stations on a monthly basis.

Ground water in Northern Estonia (Cambrian-Vendi aquifer) contains natural radionuclides. The natural radioactivity of Estonian ground water has been thoroughly studied by the Geological Survey of Estonia as well as the Estonian Radiation Centre. To assess the health impacts of radioactivity, the Radiation Centre together with the Health Board carried out a health risk assessment in Tallinn ground water areas in 2010. Based on the results of the risk assessment, any health damage of accidental nature resulting from the content of radionuclides in the water of Cambrian-Vendi bore-wells is unlikely. Additional information on this topic is available on our webpage www.tallinnavesi.ee or on the Health Board's webpage www.terviseamet.ee.

Ground water treatment

Ground water used for producing drinking water usually belongs to the quality class I-III. Ground water from Ordovician-Cambrian aquifer usually belongs to the quality class I and does not need any treatment. However, ground water from Cambrian-Vendi aquifer in the quality class II or III and serving as the main drinking water source requires treatment. The main reason is mostly a natural excess content of iron, manganese or ammonium resulting in higher turbidity of water than usual.

In order to supply compliant drinking water, we treat ground water by using filtration and aeration to remove excess iron, manganese and ammonium from the water. Filtration uses pressure filters installed in the bore-well pumping stations. Pressure filters are used to aerate and filter raw ground water. The Water Act foresees the preservation of ground water as similar to its natural conditions as possible, therefore, no chemicals are used. The samples taken after the ground water treatment process indicate a significant decrease in turbidity as well as in the content of iron, manganese and ammonium, an improvement of colour and stability index and an increase in oxygen content.

To improve the water quality in the City of Maardu, the city has gradually been transferred to surface water supply from Ülemiste Water Treatment Plant. All bore-wells in Maardu are currently in reserve and there is no consumption of ground water. The bore-well pumping stations switch on only in case the pressure of drinking water from Ülemiste is insufficient; also, the bore-wells are used to keep certain water supply. 100% of the water samples taken in 2014 from the ground water bore-well pumping stations in Maardu were compliant with the requirements. In addition to Maardu, also the bore-well pumping station areas of Rukkilille and Karikakra in Harku borough were taken to surface water supply from Ülemiste Water Treatment Plant starting from 1 June 2014. A booster pumping station was built in the area to ensure the required water pressure.

TABLE 11-4: Ground water quality in pumping stations 2010-2014

Parameter	Unit	Average results					Regulation no 82, EU directive 98/83/EC
		2010	2011	2012	2013	2014	
Odour	points	1	1	1	1	1	Acceptable to consumer
Taste	points	1	1	1	1	1	Acceptable to consumer
Temperature	°C	8.4	8.9	8.8	8.8	9.1	
Colour	mg Pt/l	3.6	4	<4	<3	<3	Acceptable to consumer
Turbidity	NTU	0.5	0.48	0.38	0.39	0.37	Acceptable to consumer
Dissolved O ₂	mg/l	5.4	5.4	5.8	6	7	
pH		8	8.05	7.95	7.97	7.93	6.5 – 9.5
Conductivity	µS/cm	518	493	493	489	482	2500
Permanganate index (COD _{Mn})*	O ₂ mg/l	0.7	0.66	0.69	0.73	0.61	5
Total organic carbon (TOC)	mg/l	0.7	0.75	0.73	0.76	0.71	Without unusual changes
Alkalinity	mg-ekv/l	2.49	2.52	2.60	2.49	2.54	
Total hardness	mg-ekv/l	3.4	3.23	3.29	3.23	3.21	
Temporary hardness	mg-ekv/l	2.5	2.49	2.56	2.47	2.51	
Permanent hardness	mg-ekv/l	0.9	0.75	0.73	0.76	0.71	
Free CO ₂	mg/l	3.5	3	3.8	3	4	
Total iron Fe **	mg/l, µg/l	0.05	0.056	0.05	44	21.5	200
Fluoride F ⁻	mg/l	0.59	0.61	0.59	0.59	0.54	1.5
Manganese Mn **	mg/l, µg/l	0.014	0.014	0.012	14	8.15	50
Ammonium NH ₄ ⁺	mg/l	0.135	0.124	0.125	0.126	0.107	0.5
Nitrites NO ₂ ⁻	mg/l	0.022	0.013	0.010	0.014	0.012	0.5
Nitrates NO ₃ ⁻	mg/l	0.75	0.8	<1	<1	<1	50
Stability index		0.09	0.22	0.1	0.11	0.08	
Sulphides S ²⁻	mg/l	0.005	0.004	<0.004	<0.004	<0.004	
Dry residue	mg/l	312	304	313	320	308	
Calcium Ca	mg/l	47	45	46	45	45	
Magnesium Mg	mg/l	12	12.1	12.2	13	13	
Sodium Na	mg/l	41	43.3	43	44	42	200
Potassium K	mg/l	6.8	6.88	6.8	6.76	6.79	
Sulphates SO ₄ ²⁻	mg/l	20	18.4	19	20	20	250
Bicarbonates HCO ₃ ⁻	mg/l	152	153.5	158	152	155	
Chlorides Cl ⁻	mg/l	83	82.8	83	85	83	250
Boron B	mg/l	0.17	0.176	0.16	0.156	0.166	1
Aluminium Al	µg/l	1.03	0.91	1.4	1.52	2.57	200
Arsenic As	µg/l	0.11	<0.1	0.11	<0.1	<0.1	10
Cadmium Cd	µg/l	0.02	0.01	<0.02	<0.02	<0.02	5
Chromium Cr	µg/l	0.45	0.5	0.52	0.48	0.5	50
Copper Cu	mg/l	0.0056	0.0033	0.0036	0.005	0.0022	2
Mercury Hg	µg/l	<0.05	0.06	<0.1	<0.1	<0.1	1
Nickel Ni	µg/l	1.24	1	1.5	3.24	1.29	20
Lead Pb	µg/l	0.23	0.14	0.20	0.3	0.125	10
Antimony Sb	µg/l	0.02	0.02	0.01	<0.01	<0.02	5
Selenium Se	µg/l	0.58	0.51	<0.7	<0.7	<0.7	10
Enterococcus	CFU/100ml	0	0	0	0	0	0
No of colony forming units at 22°C	CFU/ml	9	6	3	4	3	Without unusual changes
Coliform bacteria	CFU/100ml	0	0	0	0	0	0
Escherichia coli	CFU/100ml	0	0	0	0	0	0

* Minister of Social Affairs decree No 82 does not establish a requirement to determine COD in drinking water, provided that total organic carbon has been determined. The listed indicator has been determined in the drinking water sources and the content of that does not change after going through filters.

** Until 31.12.2012 calculated to unit mg/l. Since 01.01.2013 the new unit is µg/l

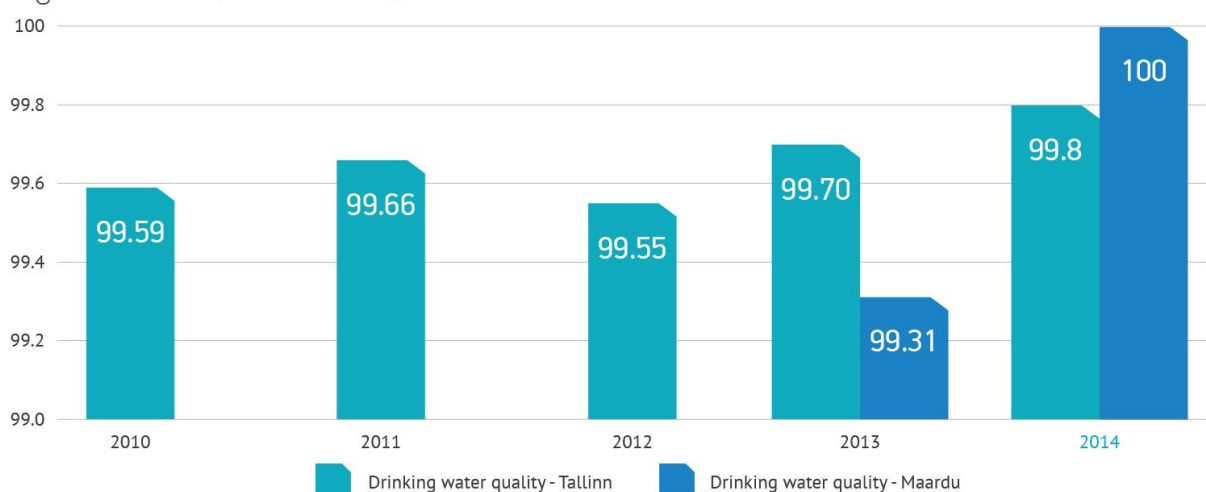
Drinking water quality in the network and customer premises

Tap water in Tallinn and Maardu is of a very good quality and it is safe to drink it. In terms of quality, the year 2014 did not differ from the previous periods. During the year, we took samples twice a month at the sampling points agreed with the Northern Department of the Health Board.

The best ever result, where 99.80% of all water samples complied with the standards, means that in 2014 we detected non-compliances only in 6 samples of the total of 2,946 samples taken from customer taps. The non-compliances were mainly related to higher iron and turbidity parameters caused by the conditions of the water network. We immediately reacted to all non-compliances.

100% of the 144 water samples taken in Maardu in 2014 complied with the standards. Before the connection with Tallinn water network, the quality compliance of drinking water in Maardu was only 33%.

DIAGRAM 11-1: Compliance of the quality of drinking water with the requirements set out in the regulation no 82, in 2010-2014, %.



Maintenance and investments related to the water network

We are constantly performing maintenance and renovation works on the network to retain and improve the drinking water quality. We regularly clean and flush the water network to guarantee high drinking water quality for the consumers. During the cleaning process the sediment build-up is removed from the network serving as one of the important methods improving water quality in distribution networks. In 2014, air-scouring pipe cleaning method was carried out on 145 km of water network.

TABLE 11-5: Cleaned water network 2010-2014, km

	2010	2011	2012	2013	2014
Cleaned water Network	165	151	143	140	145

Investments in replacing old water pipes have facilitated an improvement in water quality in customer premises and a more efficient use of water resources. 5.6 km of water pipes were renovated in 2014.

TABLE 11-6: Water network reconstruction 2010-2014, km

	2010	2011	2012	2013	2014
Reconstruction	16.7	5.1	5.2	5.3	5.6

12. Usage of water resource

Significant environmental aspect	Objective
Water used for our own purposes	Using water resources sparingly has reduced the ecological footprint of the water used for our own purposes
2014 task	
Our own consumption of water is below the average of the last three years - <580 000 m ³	

Water extraction

Our activities in using water resources are regulated by the Water Act and its implementing provisions. As a water company we must hold a valid water extraction permit with a term and pay a fee for the water resource used. The water extraction permit involves certain obligations and restrictions (e.g. the permit sets out the allowed water extraction volume (m³)), keeping the account of water, metering ground water level, requirements of sampling standards, monitoring and analyses, also the allowed limit values of pollutants in effluent, requirements for monitoring the pollutants and the measures reducing the impact of water extraction).

All requirements established in the water extraction permits were met in 2014. The water extraction fee water is paid for the amount of water taken into Ülemiste Water Treatment Plant and for water pumped from ground water aquifers. In 2014, the water extraction fee amounted to 4.7% of the costs of the sold products/services.

TABEL 12-1: Valid water permits of AS Tallinna Vesi

Permit no.	Valid until	Description of special use of water
Permit for special use of water (L.VV/323855)	31.10.2018	Saue City public water and sewerage service area. Extraction of ground water from boreholes, over 5 m ³ /day. Collection of wastewater and directing wastewater to Paljassaare Wastewater Treatment Plant owned by AS Tallinna Vesi.
Permit for special use of water (L.VV/322982)	31.03.2018	Tallinn public water supply and sewerage system main operating area, Tallinn surface water catchment system facilities area in Harju and Järva Counties. Regulating surface water resources in water bodies of Ülemiste-Pirita-Jägala surface water system, water extraction from Lake Ülemiste, extracting ground water from Ordovician-Cambrian and Cambrian-Vendi aquifers through Tallinn public water supply and sewerage system boreholes, for discharging biologically treated effluent through a deep-sea outlet pipe into Tallinn Bay and for discharging mechanically treated storm water into the sea, Mustjõe Stream and Pääsküla Wetland.
Permit for special use of water (L.VV/320972)	6.11.2016	Harju County, Harku Municipality. Extraction of ground water from boreholes, over 5 m ³ /day. Discharge and treatment of sewage and storm water from customers and discharge of wastewater to the receiving body of water.
Permit for special use of water (L.VV/320980)	31.10.2016	Maardu City public water supply and sewerage system operating area. Extraction of industrial and drinking water from Cambrian-Vendi aquifers in order to supply water to the institutions, enterprises and inhabitants of Maardu City, Kallasvere and Muuga area. All Kallasvere and Maardu public sewerage system is connected to Tallinna public sewerage system.

On 2014 our own water consumption was 514 180 m³.

Usage of surface water resources

To increase the water volume we have built a water catchment system, which consists of hydropoints constructed on rivers and of water reservoirs as well as the channels connecting those. Our water catchment system mainly comprises Harju sub-basin and the river basins of Soodla, Jägala and Pirita Rivers with the total area of ca 1,800 km². The most important water reservoir is Lake Ülemiste with a net volume of 15.8 million m³ on a normal water level. Additional water reserves for dry periods have been accumulated to Paunküla water reservoir on the headwaters of the Pirita River (9.9 million m³) and to Soodla water reservoir on the Soodla River (7.4 million m³).

The volume of water resources in Tallinn's surface water catchment system primarily depends on the annual amount of precipitation. In a year of average rainfall, approximately 50% of the possible water resources in the system are used up. Constant information on the flows enables us to use the water resource in the most efficient manner. To regulate the water resources in an optimum and accurate manner we have established water metering points at all hydropoints enabling us to meter both the flows conducted to the channels and the sanitary flows in the rivers. We perform metering regularly as per the requirements of the water extraction permit.

2014 was a dry year and thus additional water was taken to Lake Ülemiste almost throughout the entire year. More than half of the water need was covered by water from Pirita Ülemiste channel (14 million m³). 2006 was the last year, when such a high volume of water was additionally taken to the lake. Additionally, due to low precipitation the water washed considerably smaller amount of nutrients from soil into water bodies and this significantly improved the water quality in all water bodies. Single deviations clearly indicate the impact of human activity.

Pursuant to the water extraction permit L.VV/322982 (valid 01.04.2013-31.03.2018) the Company is allowed to extract 47.60 million m³ of surface water per year from Lake Ülemiste. The actual surface water use in 2014 was 22.61 million m³.

TABLE 12-2: Usage of surface water from lake Ülemiste and compliance with special use of water permit NO. L.VV/322982, million m³

	2010	2011	2012	2013	2014
Usage of surface water from lake Ülemiste	21.98	21.57	21.75	22.20	22.61

Maximum volume permitted 47.6 million m³/year

Usage of ground water resources

For the constant inspection of ground water resources in Tallinn and other operated areas, the Company carries out regular measurements of ground water levels. All bore-wells of the Company currently in use are equipped with automatic hydrostatic pressure sensors which enable to measure the static and dynamic level of ground water. The results of measuring the water levels in bore-wells indicate an increase in pressure level in the used aquifers, thus, the recovery of ground water resources.

Due to the transition from groundwater to surface water in Harku and Maardu and due to the increasing importance of surface water in Pirita area, the consumption of groundwater has declined slightly in 2014. The Company met all requirements established in the water extraction permits in 2014.

TABLE 12-3: Usage of ground water and compliance with water permits L.VV/322982, L.VV/323855, L.VV/320972 and L.VV/320980, th.m³

Parameter	Average results				
	2010	2011	2012	2013	2014
Actual usage by Tallinn	2461.5	2229.6	2161.8	2152	2076.3
incl. from Cambrian-Vendi aquifer	2042.7	1803.4	1748.1	1776.3	1706.8
Maximum volume permitted	6676.9	6676.9	6676.9	7150.7***	7150.7
Actual usage by Saue	222.5	213.7	210.7	205.2	230.7
incl. from Cambrian-Vendi aquifer	165.1	187.1	155.7	171.2	177.3
Maximum volume permitted	474.5	474.5	474.5	511.0***	511
Actual usage by Tiskre*	43.5	45.5	-	-	-
Maximum volume permitted	65.7	65.7/ 71.8	-	-	-
Actual usage by Harku*	0	12.7	57.2	58.3	57.9
incl. from Ordovician-Cambrian aquifer	-	10.3	8.5	5.4	0.9
incl. from Cambrian-Vendi aquifer	-	-	-	52.9****	57.0****
Maximum volume permitted	51.1	51.1/ 66.3	138.1/ 141.1**	141.1	141.1
Actual usage by Maardu City	714.5	618.8	36	1.5	0
Maximum volume permitted	1383.4	1383.4/ 1382.4	1382.4	1382.4	1382.4

* Since 25.10.2011 Tiskre area has been addressed in the permit of water for Harku Municipality (L.VV/320972).

** On 25.09.2012, an increase in the allowed water extraction volume by 3000 m³ was applied for. Thus 141.1 th. m³ became the maximum volume permitted.

*** The maximum volume permitted by the new permits L.VV/322982, L.VV/323855, L.VV/320972 JA L.VV/320980

**** The actual volume from Cambrian-Vendi aquifer by new permit L.VV/320972.

Leakages and interruptions to water supply

One of the most important objectives of water usage is the reduction of water losses in the network. The level of leakages has decreased compared to the last year.

The Service Agreement applied in the Tallinn service area sets us the commitment to reduce the level of leakages to 26%, on 2014 we managed to achieved 16.14%, which is an excellent performance. About ten years ago the level of leakages exceeded 32%, which means saving over 13 thousand m³ of water a day compared to the period ten years ago. Such a reduction in the level of leakages has been facilitated by our consistent efforts to use the water resource sustainably and with lower losses.

Detecting and eliminating the leakages as fast as possible contributes hugely to the reduction in the level of leakages. Our specialists have special equipment for finding leakages and along with zoning the network and remote reading devices it allows us to detect the leakages faster. In 2014, we purchased a new leak correlator to be able to detect leak locations more easily.

TABLE 12-4: Leakage level 2010-2014, %

	2010	2011	2012	2013	2014
Leakage level	21.39	17.73	15.86	16.98	16.14

In order to mitigate the inconveniences resulting from an interruption to the service, we notified the customers in advance of unplanned interruptions in 95% of the events. In 2014 we started to use new Trimble water management system, which has made the process of leakage registration and keeping a record of works much more thorough and systematic.

In case of interruptions to water supply we provide customers with a temporary water supply with the water tanks. Small water tanks (1m³) can be delivered to an emergency site by a regular car and

enable to offer temporary water supply to customers fast. In addition we use five large water tanks (5m³) and a truck carrying a water tank. In case house connections are closed, if necessary, temporary water connections to water metering points are constructed and temporary water supply is ensured with an air-water pressure tank. Since the beginning of 2014, we have been using a new insulated water tank to ensure a temporary water supply for customers also during cold winter period.



Insulated water tank



Small water tank

Metering of water

The water meters we use are of high quality and comply with the European standard EN14154 as well as the accuracy requirements thereof. The expert studies and calibration of water meters is performed by the national Central Office of Metrology, AS Metrosert.

In total over 22,805 water meters have been installed to customers' connection points, facilitating to achieve a more accurate accounting for the usage of water resources.

Thanks to the use of C-class water meters since 2005, the number of expert analyses ordered by customers for verifying the accuracy of the water meters has decreased. The number of expert analyses has consistently reduced over the recent years.



Water meter

TABEL 12-5: Number of water meters expert analyses 2010–2014, pcs.

	2010	2011	2012	2013	2014
Number of water meters expert analyses	308	235	146	146	124

Pursuant to the Metrology Act we have the obligation to verify and replace the water meters every two years. In 2014, we replaced the total of 13,331 water meters based on a programme developed for that purpose. In 2015, we shall continue our work to make sure that all our customers have water meters verified on time.

13. Collection of wastewater

To ensure an uninterrupted collection and discharge of wastewater, we preventively flush the wastewater network, as well as reconstruct and extend the sewerage and storm water network.

Cleaning and maintenance of the wastewater network

Our attention continues to be on the risks related to potential floodings and pollution. The number of blockages is an indicator reflecting the condition of the wastewater network. Blockages are mainly caused by the sediments build-up in the wastewater network. Water consumption has constantly been decreasing over the recent years, resulting in the reduction of flow volumes and flow speeds. Initially, the pipelines were dimensioned for larger flow volumes. This in turn increases the risk of blockages. Additionally, continuous extension of sewerage network is affecting the total number of blockages.

In 2014, the level of wastewater discharge service and blockages remained similar to two previous years, only the number of blockages dropped slightly by 17 blockages, compared to 2013. This kind of continuously good performance over the last years has been the result of numerous preventive actions, such as raising the efficiency of pressure washing. Also, renovating the problematic pipes in the framework of 5+5 programme contributes to this. 5+5 programme means that according to the Services Agreement, signed with the City of Tallinn, we will renovate each year 5 kilometers of sewerage network and 5 kilometers of water network.

TABLE 13-1: Number of blockages 2010-2014, pcs.

	2010	2011	2012	2013	2014
Number of blockages, pcs.	1152	982	749	789	772

For flushing a pipe, first, a flow speed is generated with high pressure carrying sediment into the nearest cesspool. Sediment is then collected with pressure washing trucks and transported to Paljassaare Wastewater Treatment Plant. Pressure washing is performed by our subsidiary OÜ Watercom using a recycling system on the trucks, which enables to use the water required for flushing repeatedly.

TABLE 13-2: Wastewater network flushed 2010-2014, km.

	2010	2011	2012	2013	2014
Wastewater network flushed, km	147	195	182	208	185

Reconstruction and extension of the wastewater network

Investments in the replacement of worn out wastewater network and in the construction of new network contribute to the consistent improvement of the quality of environmentally friendly service.

In 2014, the company renovated 5km of the existing wastewater network. As per the agreement with the City of Tallinn and pursuant to the European Union wastewater collection directive, we have completed the public water supply and wastewater network extension programme. Therefore, the respective data is not included in this report.

TABLE 13-3: Wastewater and storm water network reconstruction in 2010-2014, km.

	2010	2011	2012	2013	2014
Reconstructed network	5.7	5.7	5.9	5.4	5.0

Monitoring over-pollution caused by customers

In order to ensure acceptable concentrations of pollution in the wastewater reaching the Paljassaare Wastewater Treatment Plant, we regularly monitor the wastewater discharged in Tallinn and Maardu and in the surrounding areas and check the compliance with legal requirements. Information on the average pollution indicators of major industries is also regularly submitted to the Environmental Board.

In 2014, our Wastewater Inspectorate performed 665 inspections to identify inspection wells, to check local treatment facilities and boundary drawings. 1,404 wastewater samples, incl. 489 monitoring samples, were taken for determining the wastewater pollution load at sites. Over-pollution instances were identified and over-pollution fees were applied on 391 occasions.

Storm water outlets

In 2014, ASTV Wastewater Inspectorate monitored 24 storm water outlets pursuant to the requirements set forth in the permits for a special use of water no L.VV/322982 and L.VV/320980, the largest storm water outlets being the Lasnamäe, Harku and Mustoja outlets. Four storm water outlets (Olevi, Kaare, Raba and Vabaduse streets) have been equipped with local treatment facilities such as sand and oil traps, which we regularly maintain and clean in order to avoid possible environment pollution.

A total of 4.08 million m³ of storm water was discharged to the environment through the outlets in 2014, i.e. less than a year before. This was due to the lower volume of precipitation during the reported period. The average level of precipitation in Tallinn was 587 mm per area unit in 2013, in 2014 this figure was 576 mm. Though the amount of precipitation was low in 2013 too, there were more pouring rains that quickly flushed the pipelines, and this caused significantly smaller amount of suspended solids in storm water. While in 2014, there were less pouring rains and the amount of suspended solids were on average level. At the same time, the amount of oil products in storm water was higher in 2014, due to a one-time oil products discharge into the storm water network and on to the sea, from an unknown source. As a responsible company, we have tried to identify this source of pollution, unfortunately without any success. In order to avoid similar situations in the future, we intensify cooperation with Tallinn Municipal Police and educate our consumers through media campaigns.

TABLE 13-4: Storm water volume 2010-2014, million m³

	2010	2011	2012	2013	2014
Storm water volume	5.70	6.00	7.40	4.17	4.08

TABLE 13-5: Pollutants from the main outlets 2010-2014, t

	2010	2011	2012	2013	2014
Suspended solids	110.6	114.5	143.4	69.8	109.4
Oil products	0.4	0.5	0.5	0.5	0.8

14. Wastewater treatment

Significant environmental aspect	Objective
Wastewater treatment	Our main operational indicators are under control and all objectives achieved
2014 task	
Compliance of pollution parameters is achieved at the Wastewater Treatment Plant and at the storm water outlets – 0 non-compliance	

We treat the wastewater collected in Tallinn and nearest surrounding areas, using environmentally friendly and modern technologies at Paljassaare Wastewater Treatment Plant. In 2014 42.99 million m³ of wastewater was treated at Paljassaare Wastewater Treatment Plant.

TABLE 14-1: Treated wastewater volume 2010-2014, million m³

	2010	2011	2012	2013	2014
Treated wastewater volume	45.92	50.81	56.98	45.02	42.99

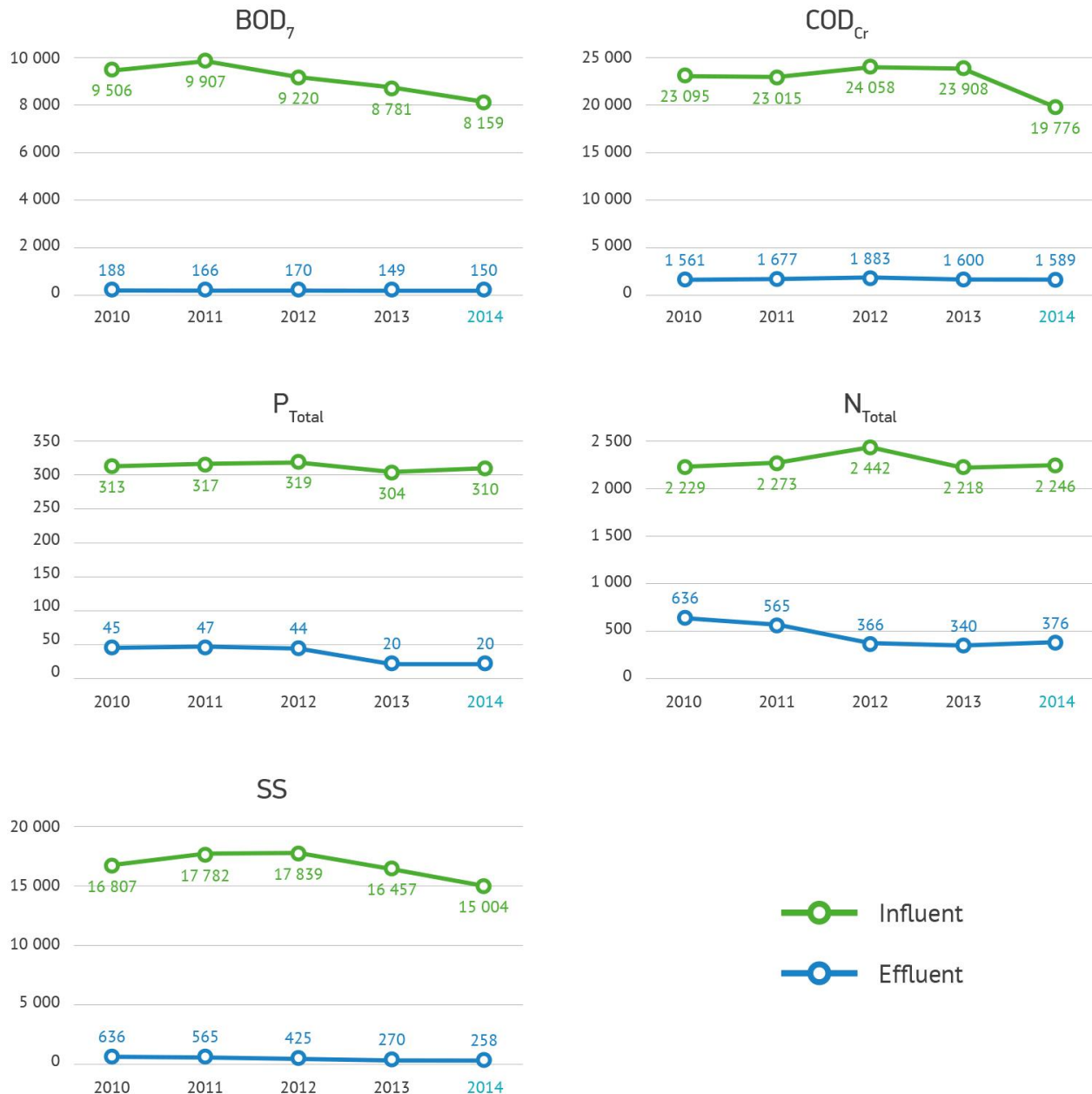
The quality of effluent discharged to the sea is set by the legal acts and the water extraction permit no L.VV/322982. The concentration of pollutants in wastewater arriving to the treatment plant and in the effluent leaving the plant are monitored to assess the efficiency of the treatment process and the quality of effluent. In 2014, the wastewater laboratory carried out 47,000 analyses at different treatment stages in the plant.

The important pollution parameters for us are the following:

- **BOD₇** (biological oxygen demand shows the amount of oxygen required for the defined biological decomposition of organic matter in the course of 7 days);
- **COD_{Cr}** (chemical oxygen demand is a measure of the decomposition of organic matter, measured as the consumption of oxygen in chemical oxidation of all organic matter in water);
- **SS** (suspended solids shows the volume of solid matter in water which is caught in a filter with a defined mesh size);
- **N_{total}** and **P_{total}** (total phosphorus and total nitrogen are elements contained in nutrient salts, which increase the growth of plankton in water. If the content of nutrient salts is too high, the growth can be so strong that oxygen is used up and a shortage of oxygen arises);
- **Oil products** (show the amount of light (e.g. petroleum) and heavy (e.g. heavy fuel oil) oil products).

Wastewater volumes were similar to the previous year but the pollution loads in 2014 were mostly lower than previously. Only a slight increase was seen in phosphorus and nitrogen loads in influent. The level of pollutants discharged with effluent were at the same level.

DIAGRAM 14-1: Amounts of pollutants coming into the Wastewater Treatment Plant and discharged into the sea 2010-2014, t



Paljassaare Wastewater Treatment Plant is already today achieving a high quality of effluent. We continue to be committed to maintaining the high standards and outperforming the norms established for the effluent discharged to the Baltic Sea. In the reporting year, the operation in all stages of the treatment process was continuously improved and equipment upgraded as planned. Along with the renewal of the aeration system also the mixers in activated sludge process were replaced.

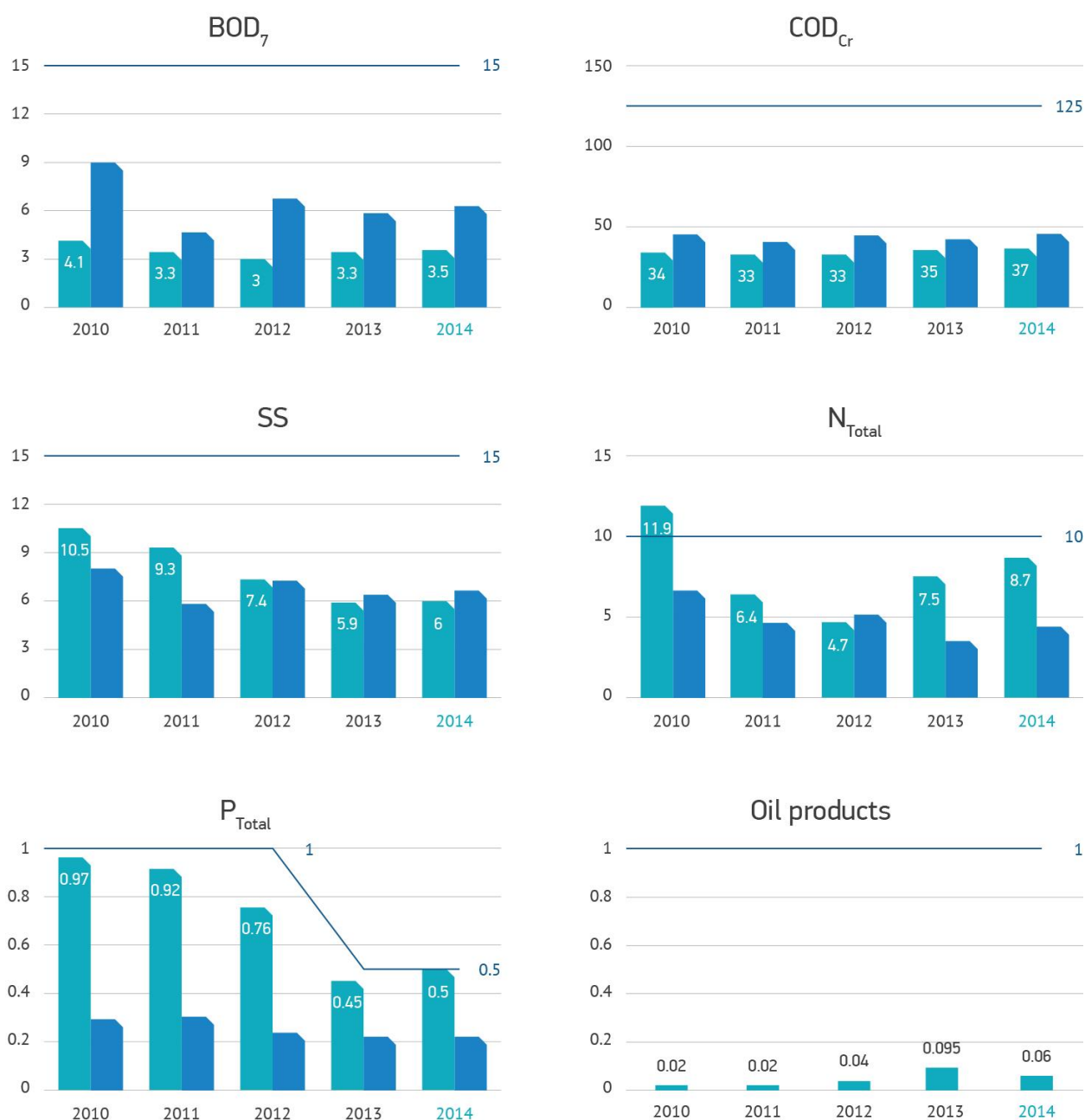
Pursuant to the change of law, since 2013, our main challenge has been achieving the new maximum allowed level of total phosphorus (0.50 mg/l). Despite a relatively stable annual average, the phosphorus concentration in the incoming wastewater fluctuates quite a lot throughout a year. To manage the treatment process better, we plan to reconstruct the coagulant dosing point by 2016.

As a result of the investments made in the Paljassaare Wastewater Treatment Plant, Tallinn has been removed from the hotspots list of Helsinki Commission for the protection of the Baltic marine environment. HELCOM organises international cooperation on the basis of the Convention on the protection of the Marine Environment of the Baltic Sea area against all pollution sources and to restore as well as to protect its ecological balance. By the end of 2014, the wastewater treatment results were in compliance with the HELCOM and legal requirements.



Biofilter

DIAGRAM 14-2: Average pollution indicators in treated wastewater 2010-2014 compared to regulatory requirements and the results of HSY, mg/l

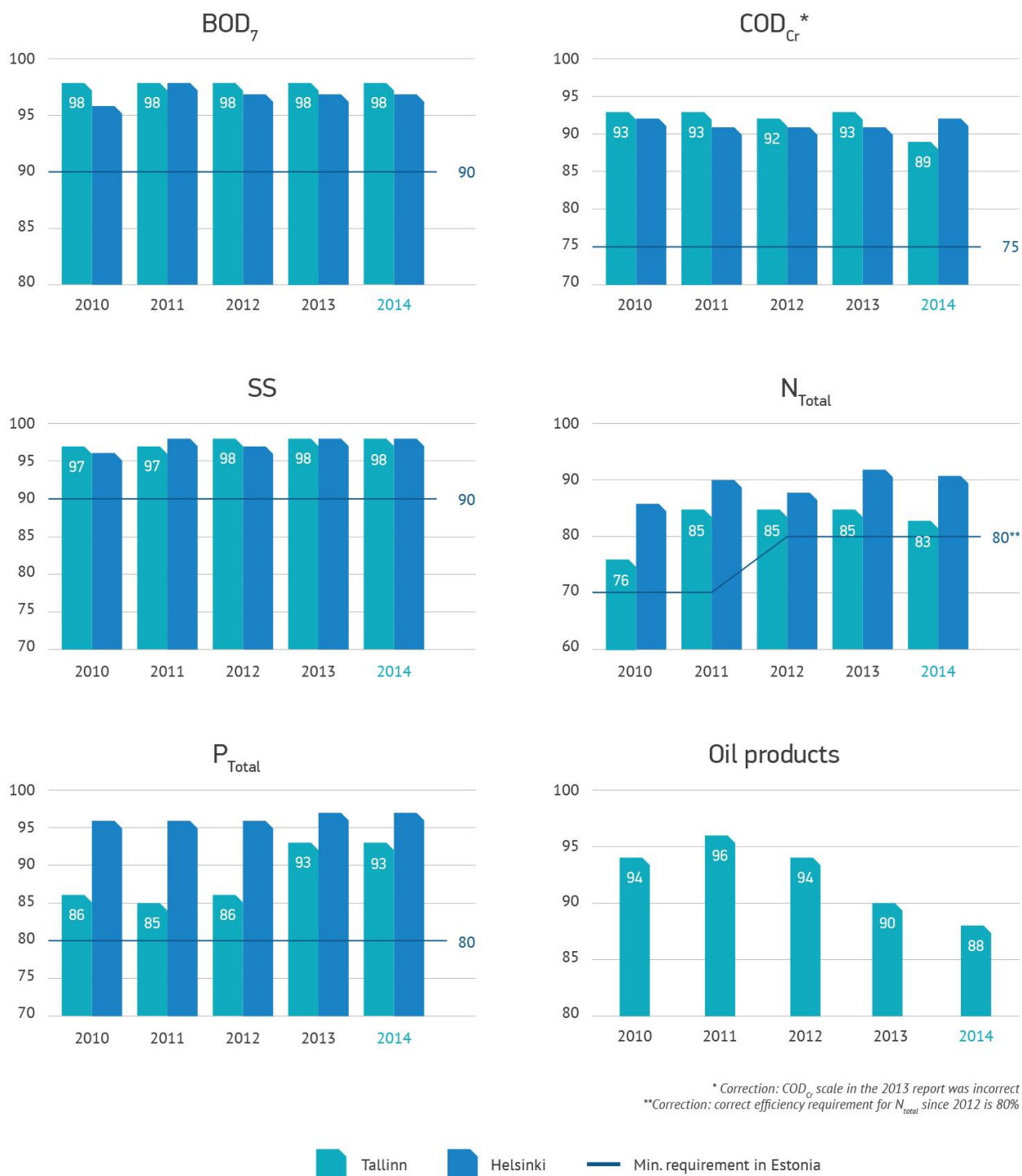


* In line with the applicable legal acts, the compliance of total nitrogen has not been analysed at the wastewater temperature below 12°C.

** Until 2012, the max. requirement value of P_{total} was 1 mg/l. Since 2013, in line with the Water Act §24 (2), the Regulation No. 99 stipulates the new limit value of 0,5 mg/l for P_{total}.

Tallinn Helsinki Req. in Estonia*

DIAGRAM 14-3: Wastewater Treatment Plant treatment efficiency 2010-2014, in percentage terms, compared to the regulatory requirements, Estonia's average results and the results of HSY, %



Wastewater outlets to the sea

The 2014 level of precipitation was similar to that of 2013. During 2014, we were twice (in June and July) bound to open the emergency outlets in the Wastewater Treatment Plant for a short period of time during heavy showers to avoid major damages. However, due to generally very good weather and excellent operating performance very little, i.e. total of 1303 m³ of wastewater diluted by storm water (dilution ¼) was conducted to the sea.

Throughout the year 2014, 224,485 m³ of highly diluted wastewater, which underwent mechanical treatment, was discharged to the sea through the deep-sea outlet due to the shock loads, which exceeded the biological treatment capacity.

TABLE 14-2: Wastewater Treatment Plant overflows 2010–2014, th. m³/year

	2010	2011	2012	2013	2014
Untreated wastewater discharged to the sea	0	107.5	137	379.7	1.3
Partly treated wastewater discharged to the sea	174	23.6	186	200.1	224.5

Pollution tax

As a water company we are required to act in line with the environmental permits and pay pollution tax with the aim to avoid and reduce the potential damage caused by pollutants or waste discharged to the environment.

The calculation of pollution tax is established in the permit for the special use of water and the Environmental Charges Act and is applied to the pollutants contained in the effluent and storm water at the particular outlets. Both the receiving water coefficient of the specific outlet as well as compliance with the pollutant limit value in effluent are taken into account in pollution charge calculations.

In 2014, we complied with the conditions serving as the basis for the fee for the special use of water established in the permits for the special use of water, except for the heavy metals (Zn and Cu) in QI and QII. In QIV 2013, the limit values set for hazardous substances (Zn and Cu) were amended in the permit for the special use of water as per the legislation. Consequently, the limit values were reduced by ca 400 times with a short notice and the technology used in Paljassaare Wastewater Treatment Plant was not able to achieve those limit values. This was the reason, why higher pollution tax was paid for QI and QII in 2014. Since QIII 2014 a mixing zone has been established for us by Environmental Board for the next ten years and after that period the effluent will have to comply with the applicable legal requirements.

In 2014, the pollution tax paid for discharging pollutants into receiving waters formed 9.7% of the cost of services sold.

15. Handling of chemicals

Significant environmental aspect	Objective
Handling of chemicals	Our main operational indicators are under control and all objectives achieved
2014 task	
To reduce the risk of accidents or emergencies occurring as a result of using chemicals – 0 accident	

We use approximately 450 hazardous and less hazardous chemicals in its operating activities. With regard to the health and wellbeing of our employees we deem a safe handling of chemicals at the work site extremely important.

The amounts of chemicals used at the treatment plants predominantly depend on the weather and quality of water to be treated. In 2014, we used a total of approximately 6,400 tons of different chemicals. In 2013, this figure was approximately 6,300 tons. By applying and following the required safety rules we have minimized the likelihood of accidents involving highly poisonous chemicals.

Water treatment chemicals

- **Chlorine**

Ülemiste Water Treatment Plant treats surface water into drinking water and the process uses chlorine as a disinfecting chemical. The most common disinfectant in use is chlorine, which is effective and has a long-term effect in the water distribution network. Chlorine has a strong oxydising effect and is extremely poisonous for aquatic life. We have been classified as a category B Company with risk of a major accident in Estonia due to the large amounts of chlorine stored at the plant and used in the water treatment process.

By applying the necessary safety measures we have minimized the likelihood of chlorine accidents. In 2014, we continued with preventative measures, carried out the necessary trainings for our staff and continued cooperation with the rescue services. In March 2014, we participated in a joint training *CBRN Integrated Response 2014*, which also included training of a major accident in the chlorine storage in the Water Treatment Plant.

- **Ozone**

Due to the replacement of water prechlorination by ozonation in order to prepare the water for the next treatment stage the usage of chlorine has considerably decreased over the past decades. Ozone is a good and quick oxydiser and effectively breaks down organic matter in raw water. Ozone is produced locally by us and only in amounts needed. Thanks to the closed process and no stock being kept, the environmental risk is minimum.

- **Coagulants and polymers**

Significant amounts of coagulants and polymers in liquid form are added in the treatment process to remove the particular matter (e.g. suspended solids and organic substance) from water.

Usage of water treatment chemicals

Water quality in Lake Ülemiste is strongly dependent on the weather, however, long-term observation has established periodic changes in quality by comparing the years. In 2014, raw water

responded well to treatment, irrespective of a hot and sunny summer the level of plankton in the lake was low and the colour as well as permanganic acid indicators were below the average. Historically, the same situation occurred in 2003/2004. Consequently, the treatment process was optimized and smaller doses of chemicals were used.

DIAGRAM 15-1: Usage of water treatment chemicals 2010-2014, t

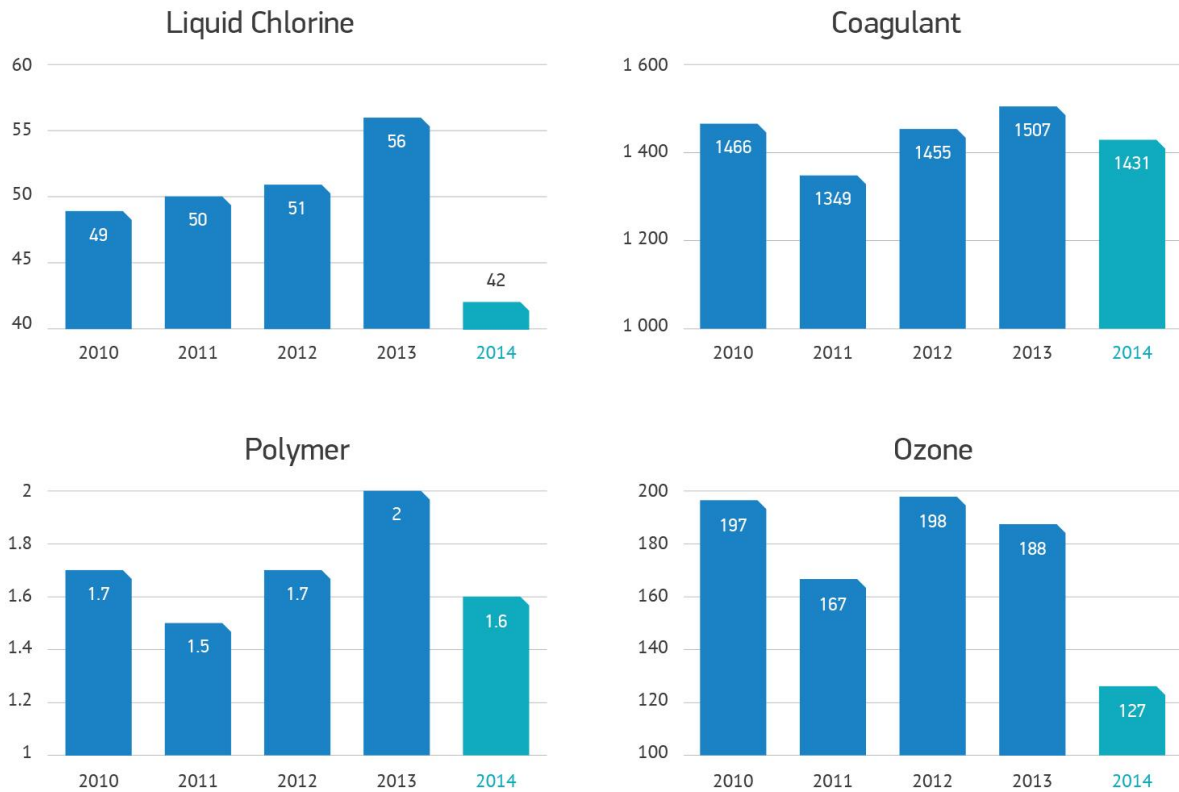
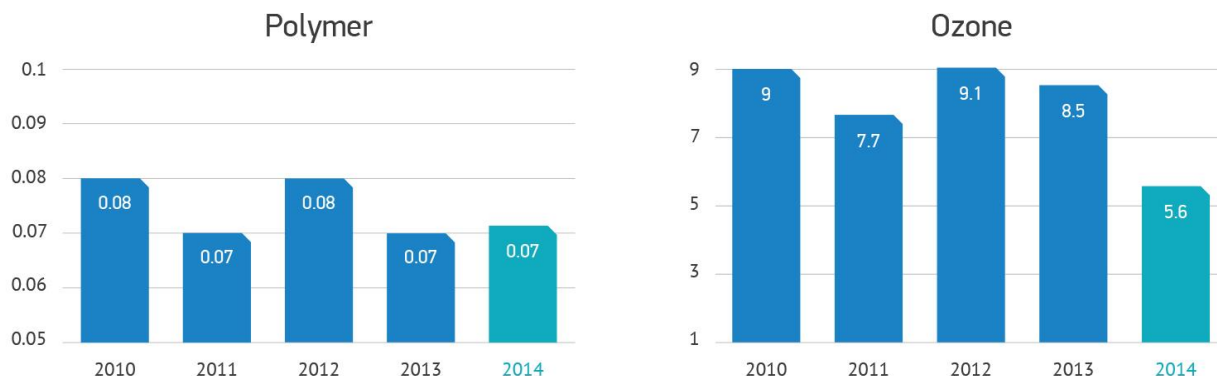


DIAGRAM 15-2: Average usage of water treatment chemicals per unit of production 2010-2014, g/m³





Wastewater treatment chemicals

- **Methanol**

We use methanol at Paljassaare Wastewater Treatment Plant to increase the nitrogen removal efficiency of the bacteria participating in the biological treatment process. Due to the methanol used in the wastewater treatment, we have been classified as one of the most hazardous companies in Estonia on the basis of the legislation related to chemicals.

- **Coagulants and polymers**

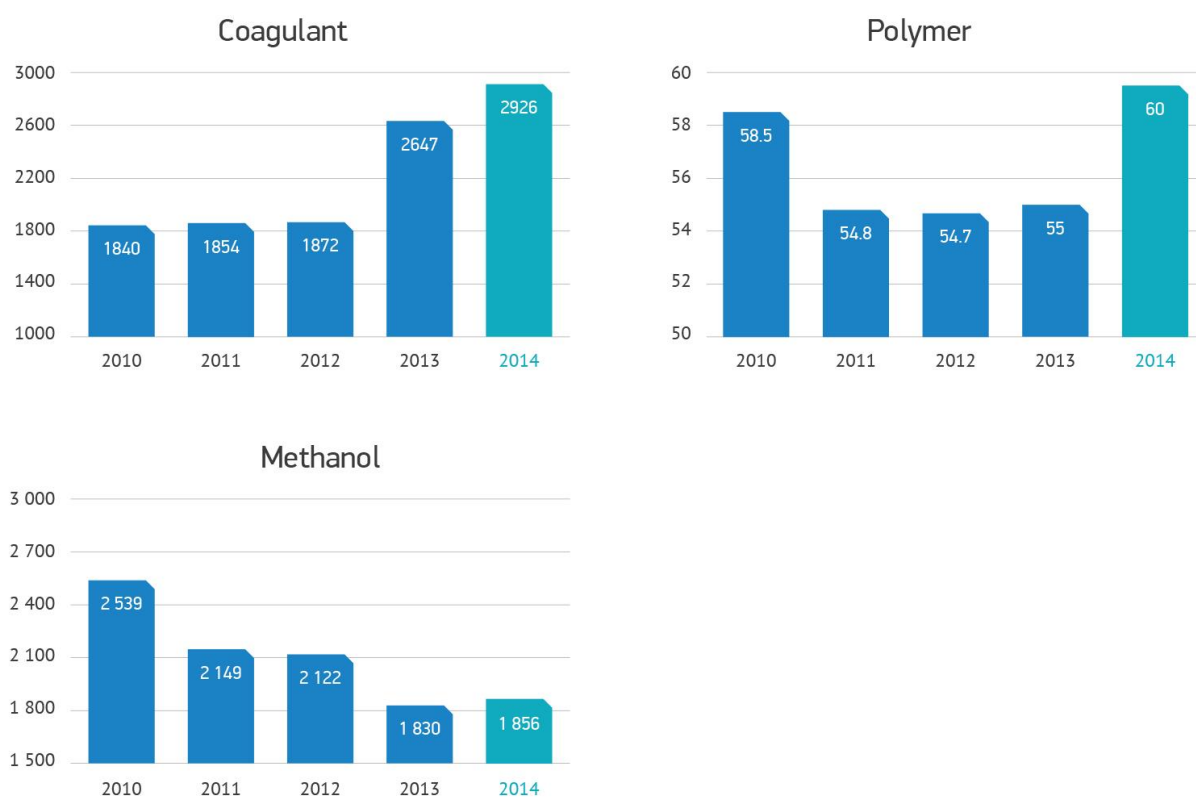
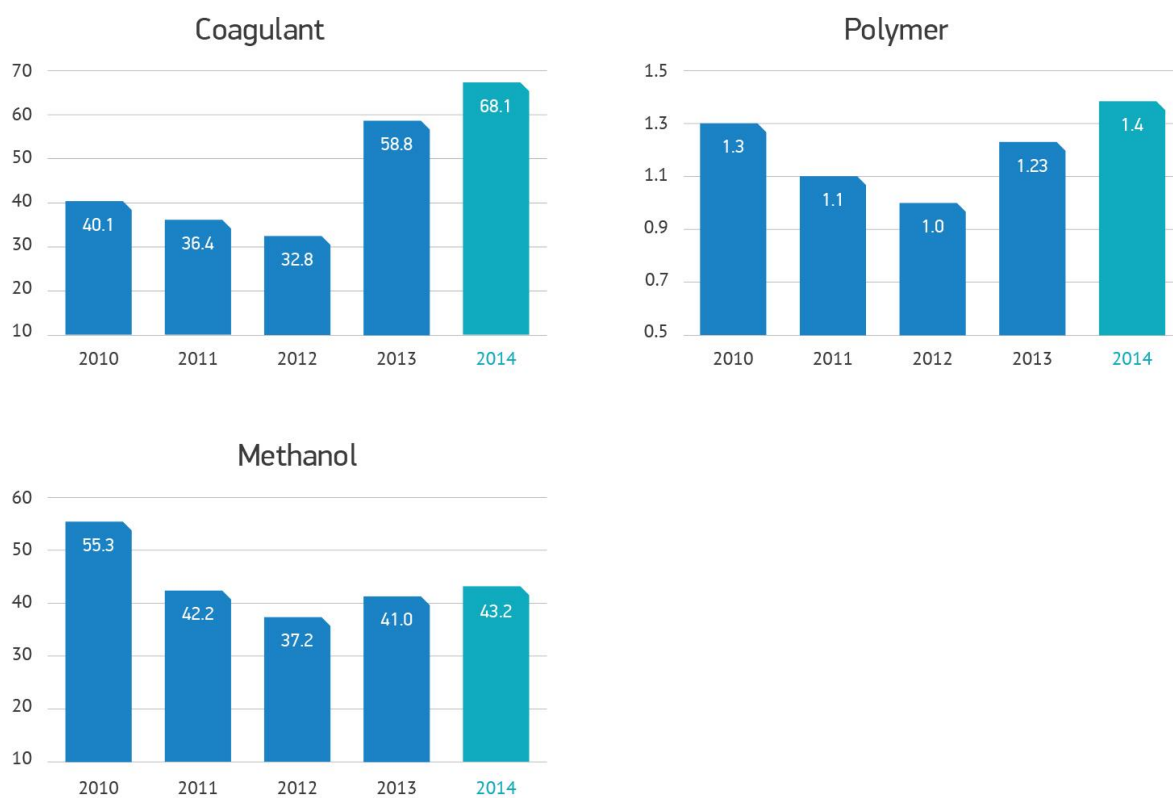
Significant amounts of coagulants and polymers are used in the wastewater treatment process. Coagulants are used for the chemical processing of wastewater to remove phosphorus. Polymers are used to change the qualities of sludge by accelerating the dewatering process.

Applying and following the required safety rules makes the use of highly poisonous chemicals fully safe for both the people and environment.

Usage of wastewater treatment chemicals

The amount of chemicals used in the wastewater treatment process is dependent on the pollution levels of incoming wastewater being in its turn affected by the weather. The higher the concentration of pollutants in incoming wastewater and the lower the limits of pollutants in the treated effluent have been set by the legal requirements, the higher is the volume of chemicals used in the wastewater treatment process. The use of chemicals in 2014 roughly stayed in the same range with 2013. The use of coagulant was higher by approximately 300 tons and this relates to higher load of phosphorus in the incoming wastewater. Also the amount of polymers used was higher than in last few years.

DIAGRAM 15-3: Usage of wastewater treatment chemicals 2010-2014, t

DIAGRAM 15-4: Average usage of wastewater treatment chemicals per unit production 2010-2014, g/m³

Ensuring the safety of chemicals

By applying the security and safety rules of handling of chemicals we have minimized the likelihood of accidents involving highly poisonous chemicals.

The necessary conditions for the storage and use of all chemicals have been created, also the information on the chemicals safety data sheets, the legal requirements and the safety instructions are followed. Absorbents and personal protective equipment are also available at all chemicals' handling sites. The sites for handling hazardous chemicals are equipped with automated alarm and degassing system for the early detection and liquidation of possible leakages. Chemicals' safety data sheets are available on hard copy, but also electronically in our Document Management System.

We have established procedures and crisis plans for ensuring the training of employees and the liquidation of emergencies. Provided that the right security and safety requirements are followed, the likelihood of emergencies with chemicals (chlorine, methanol, biogas) with serious consequences to human health and the environment is very low. During the trainings organized each year we repeat all technologies used in the water and wastewater treatment plants, potential risks, locations and usage standards of chemicals.

A follow-up training for the staff on chemicals' safety was held in the Wastewater Treatment Plant in 2014. The training organized in the Water Treatment Plant was mostly aimed at the safe handling of chlorine and prevention of operating mistakes. The training also included presentation by a Rescue Department's representative. The alarm systems were checked and tested, also the sound systems were tuned and tested.

In 2014, no reported accidents with chemicals occurred, which could have caused damage to people or the environment.

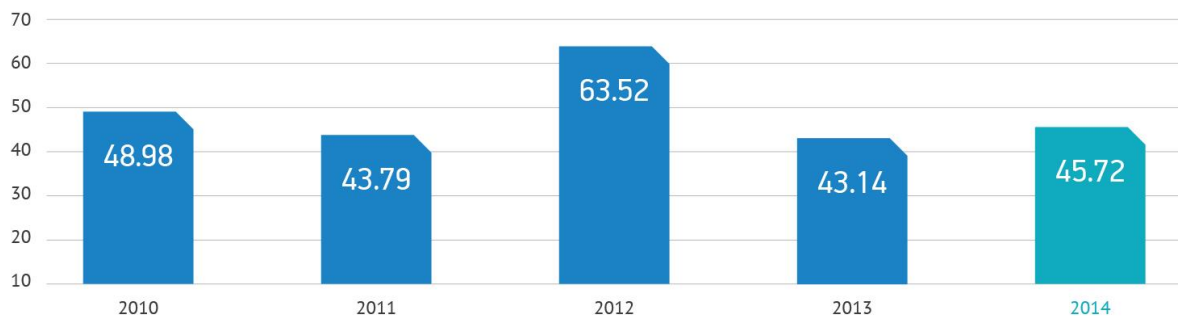
16. Waste management

Significant environmental aspect	Objective
Waste management	The ecological footprint of waste per employee has reduced compared to the last year
2014 task	
35% of Capex excavation works have been completed at closed method (3,500 m) – >35%	

The majority of the Company's waste is produced in the wastewater treatment process and in the Technical Services Department. A total of 45,718 tons of waste was produced in the Company in 2014.

The majority of waste is non-hazardous waste. Mixed municipal waste created an ecological footprint of 374 ha/y in 2014. Compared to the previous year, the amount of mixed municipal waste has slightly dropped.

DIAGRAM 16-1: Waste produced 2010-2014, th t.



Waste from wastewater treatment

One of the largest shares of non-hazardous waste is made up by sludge, which is a by-product of a wastewater treatment process. Other treatment processes also produce a significant amount of waste, such as screenings and grit from sand traps. All sludge is recycled and sold to customers or used as planting soil at different construction sites. We give our best to find ways of additional treatment of other waste produced in wastewater treatment and to reduce the amount of waste taken to the landfill.

In 2014, 34,654 tons of sludge were removed in the course of a wastewater treatment process, 32,109 tons of which were transported to Paljassaare composting fields and 2,545 tons to Liikva composting fields.

Amount of sludge, screenings and grit from sand traps directly depends on the amount of incoming wastewater, weather conditions and efficiency of City cleaning services. The amount of sludge and screenings removed from the process in 2014 was larger compared to 2013. Increased amount of screenings is mostly related to the fact that the sand washers and strain presses were replaced with new and more efficient equipment.

Construction and excavation waste

Excavated soil and stones from the networks maintenance and repair works form the bulk of the waste produced. After the amendment to the Tallinn City Excavation Works Regulation in 2010, which set an obligation on the performers of excavation works to carry out asphalt reinstatement works in a larger volume, we have been actively searching for opportunities of planning the excavation works better.

Starting from 2013, we perform most of the network reconstruction works using the so-called no-dig method. No-dig method enables to carry the works out faster and it reduces the inconveniences caused by traffic jams during the road works. Furthermore, the no-dig method reduces the load on environment during network construction, because less soil is excavated and there is no need to store the waste and refill the ground later. At the same time, due to the increase of work volumes and reorganizing of works, the amounts of metal (manhole covers disposed from the reconstruction of tramway in Pärnu Rd), asphalt waste, construction and demolition waste, concrete and brick waste increased in 2014.

Other waste

In 2014, the Company continued to separate paper and cardboards from mixed municipal waste, in order to allow further recycling and reuse of paper and cardboards and save natural resources.

To reduce the amount of paper used, we increased the proportion of electronic bills sent to customers, improved self-service, transferred to the new electronic document management system and made double-sided printing automatic, where possible.

Increase in the amount of biodegradable waste was connected to a new stationary canteen being opened in 2014 at Paljasaare Põik 14.

Amount of hazardous waste is, as a rule, small and mostly related to the old oil and oil waste from the maintenance of machinery and equipment. Figures for 2014 include also the hazardous waste collected in 2013 as the hazardous waste containers were not emptied in 2013.

TABLE 16-1: Types and amounts of main waste 2010-2014, t

Type of waste	2010	2011	2012	2013	2014
Mixed municipal waste	171	112	96	97	93
Paper and cardboard	14	14	4	4	6
Packages	4.7	4.5	0.7	0.7	0.5
Biodegradable waste	5.4	5.3	4.4	5.0	7.2
Waste from screens	303	596	920	984	1085
Wastewater sludge	33 885	28 763	20 437	27 220*	32 109
Sandtraps grid	716	509	141	422	142
Excavated stones and soil	11 750	12 417	39 183	13 341	10 882
Asphalt waste	1 790	1 161	2 305	869	1 190
Mixed building waste	18	30	103	47	84
Concrete and bricks	40	38	243	53	62
Metal scrap	26.7	23.6	47.0	14.0	44.8
Hazardous waste	3.5	2.1	3.0	0	3.4
Other waste	250	116	32	79	2
Total	48 977	43 791	63 518	43 135	45 720

* Possible to reuse
 * Wastewater sludge transported to Paljassaare composting field

Reuse of sludge

The main part of recycled waste was wastewater sludge. Raw sludge removed during the technological treatment process is digested for at least 15 days in a digester at the temperature of 37°C. Digested sludge gets dried by a centripress until the dry matter content of 30%. To produce planting soil, the process continues by mixing dewatered sludge with peat at the rate of 2:1. Thereafter the sludge mixture is prepared on Paljassaare and Liikva composting fields by mixing it at least three times per annum, after which the planting soil is ready.

We analyse the mixed sludge against the requirements established in the Regulation No 78 of 30.12.2002, issued by the Minister of Environment, four times per annum. All of the analyse results on the treated sludge and the established maximum allowed values are available on our homepage www.tallinnavesi.ee.

The share of reused waste in the non-hazardous waste is similar to the previous years - approximately 90%, if we take into account the reuse of wastewater sludge and the waste handed over to our partners.

Waste permits

The Company has currently one waste permit issued for Paljassaare and the other permit application in process for Liikva. All terms and conditions of waste permits, valid at that time, were met in 2014.

TABLE 16-2: Valid waste permits issued to AS Tallinna Vesi

Permits	Valid	Description of waste permit
Waste permit No. LJÄ/317241	Until: 9.09.2014	Issued for recycling waste in Paljassaare, regarding stabilized waste, domestic wastewater sludge and biodegradable waste.
Waste permit No. LJÄ/317829	Until: 30.12.2014	Issued for recycling stabilized waste and for transporting waste to Liikva as well as for recycling biodegradable waste.
Waste permit No. LJÄ/325362	From: 28.10.2014 Until: 27.10.2019	Issued for recycling waste in Paljassaare, procedure code R12o – biological treatment preceding the recycling of waste

By the end of 2013, a total of 24,548 tons of sludge mixture from the previous year's production had remained in stock on Paljassaare composting field. During 2014, 23,834 tons of this amount were sold to the customers and, in the same period, additional 32,109 tons of sludge from the process were deposited onto the field. By the end of 2014, 32,823 tons of sludge mixture had remained in stock on Paljassaare composting field, out of which 7,079 tons is not, according to the new waste permit LJÄ/325362, being recycled.

TABLE 16-3: Compliance with Paljassaare waste permits*, t

Type of waste	Permitted	Actual				
		2010	2011	2012	2013	2014*
Waste permit LJÄ/317241						
Volumes of waste produced						
Domestic wastewater treatment sludge	45 000	30 986	34 968	26 928	29 856	22 485
Waste recycling						
Stabilised waste	30 000	20 480	28 960	24 764	24 548	25 744
Biodegradable waste	1 000	0	0	0	0	0
Waste permit LJÄ/325362						
Volumes of waste produced						
Domestic wastewater treatment sludge	32 000					9624
Waste recycling						
Stabilised waste	32 000					0

* Volumes as per the Waste Permit No. LJÄ/317241 for the period between January and September 2014 and Waste Permit No. LJÄ/325362 since October 2014.

During 2014, a total of 8,069 tons of soil from Liikva composting field was sold to the customers and additional 2,545 tons of sludge from the process were transported to the field during the reporting period. By the end of 2014, the stock in warehouse was 0 tons of sludge mixture, i.e. everything had been handed over to the customers.

TABLE 16-4: Compliance with Liikva* waste permit no. L.JÄ.HA-317829, t

Type of waste	Permitted	Actual				
		2010	2011	2012	2013	2014
Stabilised waste	15 000	10 506	6 008	4 210	5 524	0
Biodegradable waste	3 000	0	0	0	0	0

*Specified data in 2014: waste permit no. L.JÄ.HA-317829 covers Liikva composting site

17. Energy consumption

Significant environmental aspects	Objectives
Electrical energy	The ecological footprint of electricity per employee has reduced compared to the last year
Heat energy	The ecological footprint of heat energy per employee has reduced compared to the last year
Transport	The ecological footprint of transport per employee has reduced compared to the last year
Tasks for 2014	
To reduce the hourly consumption of reactive energy at the Wastewater Treatment Plant by installing compensators	
To use energy more efficiently and sparingly keeping the usage of natural gas by the Water Treatment Plant and Wastewater Treatment Plant below the average of the last five years - <4 630 MWh Water Treatment Plant, <1 331 MWh Wastewater Treatment Plant	
To use transport more efficiently and following the transport policy to buy all new cars such that meet at least the Euro 5 standard → Euro 5 standard	

Electricity consumption

The majority of electricity is used to run the core processes of the Company – in the Water and Wastewater Treatment Plants, and in the Networks to operate pumping stations.

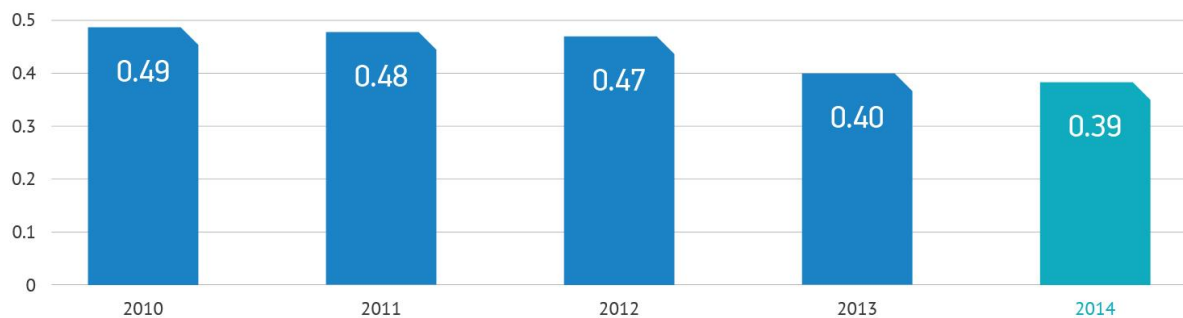
In 2014, the total consumption of electricity by the Company decreased, mostly due to very good weather conditions and low occurrence of heavy showers, which stabilized the work processes and reduced the use of electricity. Also, significant investments have been made to reduce energy consumption.

TABLE 17-1: Electricity consumption 2010-2014, MWh

Unit	2010	2011	2012	2013	2014
Water Treatment	10 657	10 382	10 325	9 705	8 709
Wastewater Treatment	19 750	21 721	25 195	22 336	21 295
incl. electricity from biogas	1 966	765	0	0	0
Networks pumping stations	6 433	6 324	7 104	6 355	5 918
Maardu	693	719	558	483	491
Other	866	800	993	830	776
Total	38 399	39 946	44 175	39 709	37 188

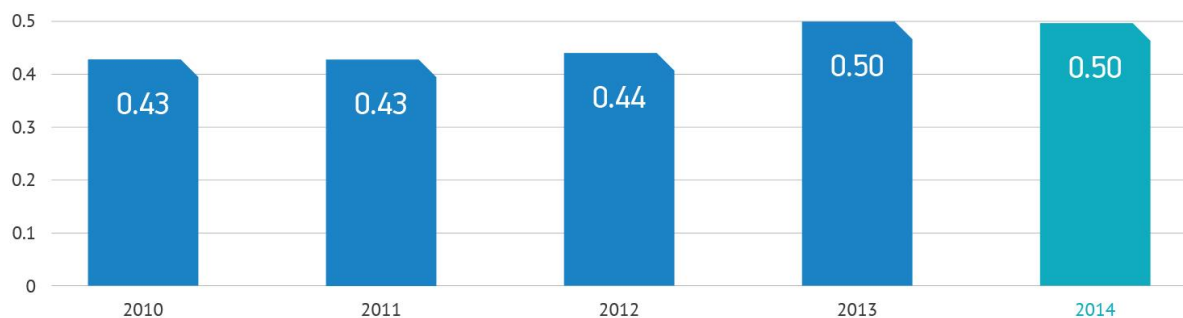
In the water treatment process, electricity is mostly used for pumping water in the various stages of the treatment process and to the water network. Significant volume of electricity is also used for producing ozone. Although the use of surface water has slowly increased year-on-year (to the level of 22.61 million m³ in 2014), the electricity consumption in the water treatment process has shown a small stable decrease.

DIAGRAM 17-1: Electricity consumption per unit produced at the Water Treatment Plant 2010-2014, kWh/m³



Electricity consumption in the wastewater treatment process is to a large degree impacted by the weather. Electricity consumption has reduced in the Wastewater Treatment Plant due to the decreased volume of precipitation and small number of heavy showers, but because of a longer retention time of wastewater in the treatment process the consumption per unit has remained similar to the previous year.

DIAGRAM 17-2: Electricity consumption per unit produced at the Wastewater Treatment Plant 2010-2014, kWh/m³



Several significant investments were made in 2014 to reduce energy consumption. E.g. over 100 measuring points facilitating more accurate measurements were established in the Water and Wastewater Treatment Plants to measure and monitor the energy consumption of the equipment used in the process. Based on the energy consumption analysis, we amended the operating instructions of the high-energy usage equipment (e.g. the main pumps) in 2014 at the Wastewater Treatment Plant. Also, the full repairs of the ozonators at the Water Treatment Plant contributed to the increase in energy efficiency. Additionally, the equipment in the pumping stations was made more energy efficient in 2014.

Consumption of heat energy

The majority of heat energy is used for running the core processes, also for heating the operations- and office buildings. Heat energy is purchased from AS Eesti Gaas and AS Tallinna Küte. To some extent the use of heat energy is compensated by the heat energy produced out of biogas in the Wastewater Treatment Plant.

In 2014, the heat used in the Wastewater Treatment Plant was mainly produced out of biogas and only a small proportion of heat was produced out of natural gas purchased externally. Water Treatment Plant produces heat out of natural gas purchased externally. Ädala main office is on central heating, which is also based on natural gas in our area. In Maardu we rent a small customer service office with a very low use of heat energy and an insignificant effect on the total consumption.

TABLE 17-2: Consumption of heat energy 2010-2014, MWh

Unit	2010	2011	2012	2013	2014
Water Treatment	5 618	4 358	4 800	4 111	3 978
Wastewater Treatment	8 176	6 634	10 467	7 310	8 989
incl. Electricity from biogas	4 506	5 134	10 467	7 310	8 977
Ådala office*	1 257	1 176	1 213	1 049	1 164
Total	15 089	12 168	16 480	12 470	14 131

*Specified data in 2014: networks pumping station's heat energy consumption was Ådala office's consumption instead

Biogas production and usage

Biogas created in the process of digesting sludge at Paljassaare Wastewater Treatment Plant is used as much as possible in our work processes. In 2014 the biogas production has been in the same level as previous years.

In 2014, a total of 2,036,060 m³ of biogas was produced in the digesters of Paljassaare Wastewater Treatment Plant. Biogas was directed to the boiler house in the Wastewater Treatment Plant for heat production. In 2014, 70% (1,425,156 m³) of biogas was used for heat production and part of the biogas was burned.

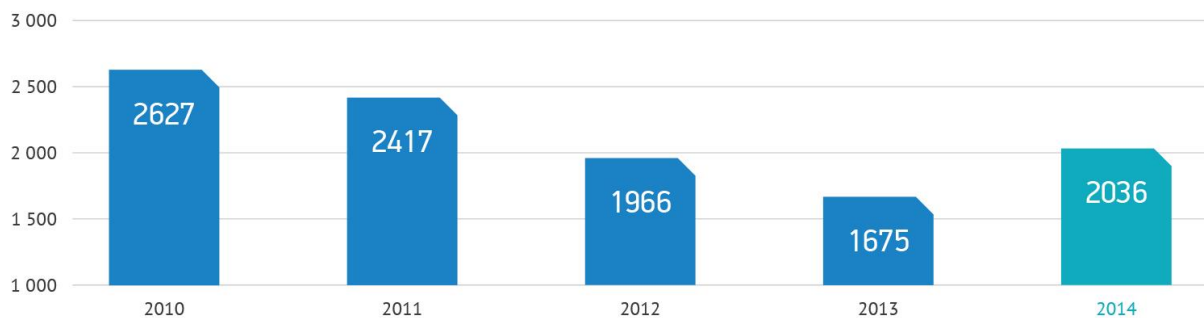
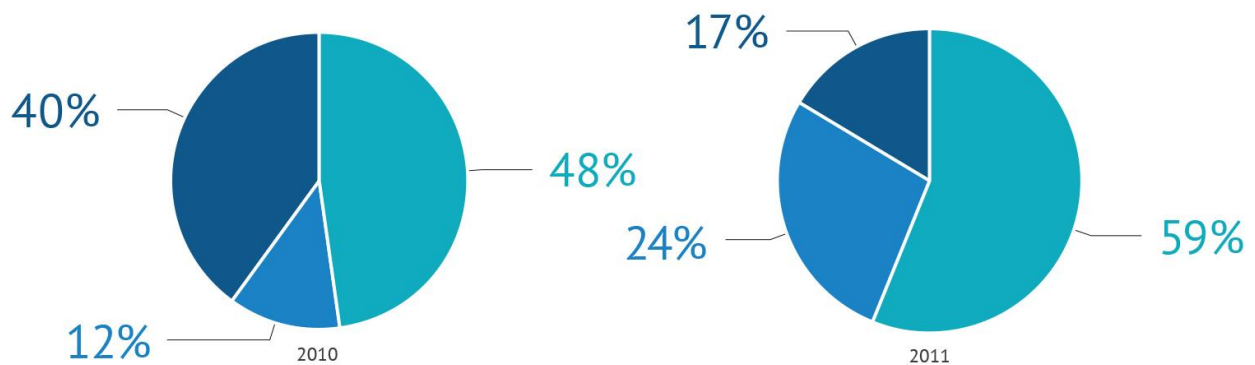
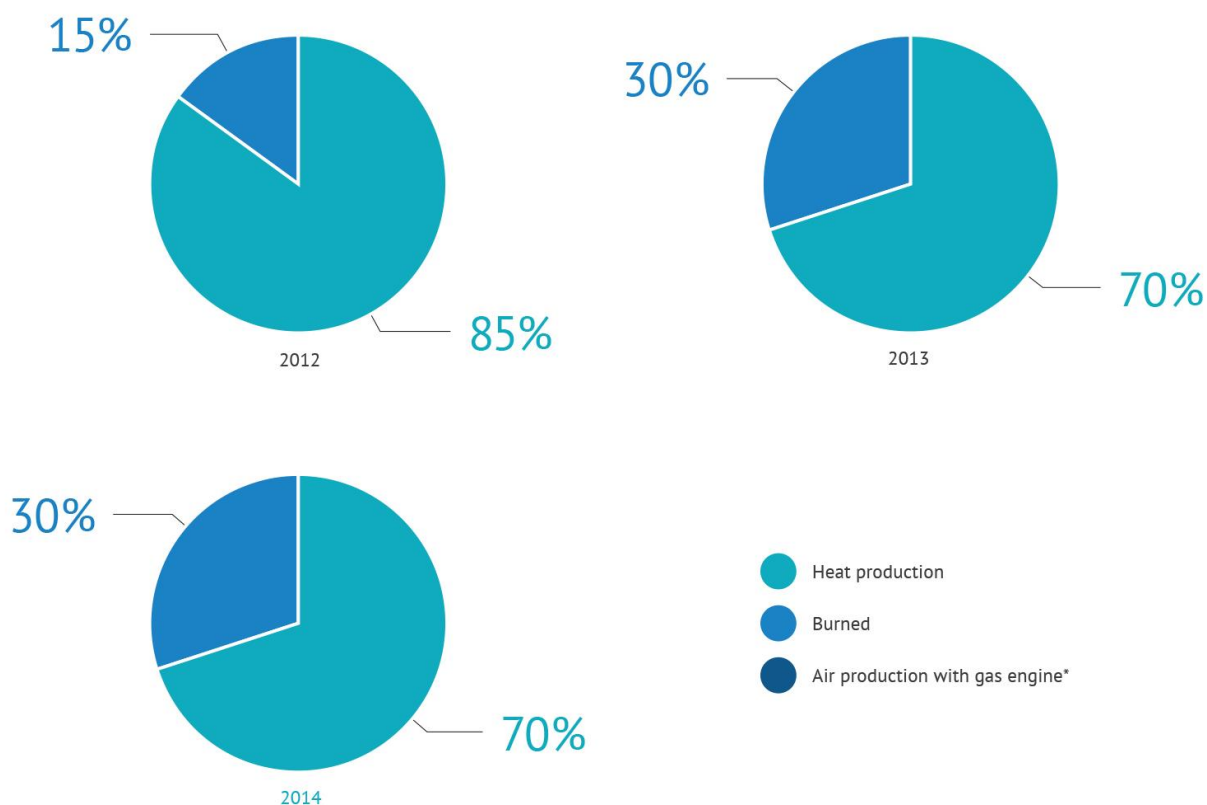
DIAGRAM 17-3: Biogas production 2010-2014, th. m³

DIAGRAM 17-4: Biogas usage 2010-2014, %





* In the second half of 2011, an emergency breakdown of gas engine occurred and it hasn't been used since then

Fuel consumption

The Company along with its subsidiary has 131 vehicles for carrying out different operating tasks. The biggest group of vehicles is passenger cars and operating vehicles, including minivans and team vans. We have a total of 96 passenger cars and operating vehicles and a total of 35 special purpose vehicles such as tractors, loaders, excavators, jet washing trucks etc.

TABLE 17-3: Fuel consumption 2010-2014, in litres

	2010	2011	2012	2013	2014
Petrol	85 735	66 418	71 939	104 051	99 502
incl. Tallinna Vesi				71 095	70 075
incl. Watercom				32 956	29 427
Diesel	170 365	140 331	132 284	264 327	255 103
incl. Tallinna Vesi				135 738	122 456
incl. Watercom				128 589	132 647
Total fuel	256 100	206 749	204 223	368 378	354 605
incl. Tallinna Vesi				206 833	192 531
incl. Watercom				161 545	162 074
Total number of vehicles, pcs.	124	98	95	126	131
incl. Tallinna Vesi, pcs.				95	93
incl. Watercom, pcs.				31	38

In 2014, the total consumption of fuel has slightly reduced compared to the previous year. We continuously try to keep the fuel consumption under control through the fuel limits set on the car users and GPS-tracking devices. Part of the cars have been transferred to shared use so that more people would be able to use the cars to deliver their work duties and save costs. The project and analysis on the use of electrical- and hybrid cars is currently suspended due to termination of state grants.

The total number of vehicles has increased by the vehicles purchased by our subsidiary OÜ Watercom due to an increased volume of works. Consequently, the consumption of diesel by our subsidiary has grown in 2014.

Transport

The Company does not keep a separate record on the mileage covered, but this can be calculated per vehicle type and the average fuel consumption. In 2014, the mileage of vehicle transport was 2.75 million km and in 2013 the respective figure was 2.97 million km. Although the total number of vehicles has slightly increased, the fuel consumption and mileage of vehicle transport have still decreased a little. All transport kilometres have been calculated in line with the calculation method for people transport, because we do not have sufficient data to calculate the exact mileage for the transport of goods.

The statistics on the use of other types of transport such as airplane, bus, ship and train will be provided by our main partner for travel services. Whilst planning their trips our staff always pick the cheapest options and thus not all trips are purchased through the travel agency, specially the bus and train trips. However, the majority of airline tickets have been bought through travel agency so far. In 2014, the Company's employees used plane transport for short-distance flights totalling 220,000 km, mainly to the UK. In 2013 the Company was awarded with the Nasdaq Balti Baltics Award for Best Investor Relations and thus 6 of the Company's employees made a business trip to New York in 2014 to represent the Company in the investor community. Consequently, approximately 106,000 km of long-distance flights were added to the usual mileage. The total airline mileage in 2014 was of 326,000 km.

Our staff makes quite a few business trips to Finland, where they usually go by boat. In 2014, the mileage of ship transport was approximately 3,200 km, which is roughly on the same level with 2013 mileage.

18. Air emission

Significant environmental aspect	Objective
Air emission	Our main operational indicators are under control and all objectives achieved
2014 task	
To ensure the compliance with the ambient air pollution permit – 0 non-compliance	

In order to reduce ambient air pollution, the Company focuses on limiting the amount of pollutants emitted from Ülemiste and Paljassaare boiler houses, particularly the pollutants of primary importance, such as nitrogen dioxide, carbon monoxide and volatile organic compounds, as well as CO₂ greenhouse gas emissions. Also the emissions of ozone produced for drinking water treatment are regulated. The Company pays a pollution charge for pollutants emitted into ambient air.

TABLE 18-1: Valid air pollution permits of AS Tallinna Vesi

Permit	Valid until	Description of ambient air pollution permit
Pollution permit No. LÕV.HA 48701	termless	Valid for Paljassaare Wastewater Treatment Plant pollution sources - the chimney of the boiler house, exhaust pipes, the chimney of the combined heat plant. Establishes the list of pollutants emitted into ambient air and the annual permitted emission amounts thereof.
Pollution permit No. LÕV/319438	termless	Valid for Ülemiste Water Treatment Plant pollution sources - the chimney of the boiler house, ozonisation, diesel generator. Establishes the list of pollutants emitted into ambient air and the annual permitted emission amounts thereof.

Emissions from both Ülemiste Water Treatment Plant and Paljassaare Wastewater Treatment Plant have been relatively low and remained stable throughout the years.

TABLE 18-2: Ambient air pollution from Water Treatment Plant pollution sources 2010–2014, t

Pollutant	2010		2011		2012		2013		2014	
	Allowed	Actual	Allowed	Actual	Allowed	Actual	Allowed	Actual	Allowed	Actual
Nitrogen dioxide, t	2.4	1.5	1.954	1.3	1.954	1.236	1.954	1.11	1.954	1.1
Carbon monoxide, t	1.9	1.4	1.846	1.19	1.846	1.127	1.846	0.98	1.846	0.969
Volatile organic compounds, t	0.17	0.1	0.125	0.08	0.125	0.077	0.125	0.07	0.125	0.067
Carbon dioxide, t	1691	1271	1688	1081	1688	1021	1688	880	1688	868
Sulphur dioxide, t	0.01	0.007	0	0	0	0.001*	0	0.001*	0	0.001*
Total solid particles, t	0.05	0.003	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004

* Sulphur dioxide emissions into ambient air were below the threshold.

TABLE 18-3: Ambient air pollution from Wastewater Treatment Plant pollution sources 2010–2014, t

Pollutant	2010		2011		2012		2013		2014	
	Allowed	Actual	Allowed	Actual	Allowed	Actual	Allowed	Actual	Allowed	Actual
Nitrogen dioxide, t	29.8	23.5	29.8	11	29.8	2.86	29.8	2.25	29.8	2.7
Carbon monoxide, t	210	161.9	210	64.9	210	2.64	210	2.25	210	2.7
Volatile organic compounds, t	14	10.8	14	5	14	0.18	14	0.15	14	0.2
Carbon dioxide, t	4440	4135	4440	3298	4440	2392	4440	2039	4440	2477
Sulphur dioxide, t	17.8	16.9	17.8	17.4	17.8	17.78	17.8	16.99	17.8	16.8

19. Environmental performance

In addition to the data on ecological footprint and as set out by the requirements of EMAS III, we outline below our main indicators of the environmental performance regarding energy efficiency, material efficiency, water, waste, biological diversity and emissions. 3 elements have been presented for each main indicator:

- Figure A, which stands for the total annual input/impact in the respective area.
- Figure B, which stands for the total gross sale revenue of the organization in millions of euros.
- Figure R, which stands for the ratio A/B.

TABLE 19-1: Environmental performance

Main indicators of environmental performance	Year	Consumption (rounded) i.e. annual input (figure A)	Annual output of the Company (figure B)	Ratio R (A/B)
Energy Efficiency				
Electricity				
Electric power produced from oil shale, MWh	2014	37 188	53.2	699
	2013	39 709	53.1	748
Heat				
Heat produced from natural gas, MWh	2014	5 154	53.2	97
	2013	5 160	53.1	97
Thermal energy produced from biogas, MWh	2014	8 977	53.2	169
	2013	7 310	53.1	138
Material Efficiency				
Handling of chemicals				
Total chemicals, t	2014	6 400	53.2	120
	2013	6 300	53.1	119
Liquid chlorine, t	2014	42	53.2	0.8
	2013	56	53.1	1.1
Coagulant, t	2014	4 358	53.2	82
	2013	4 154	53.1	78
Polymer, t	2014	61	53.2	1.2
	2013	57	53.1	1.1
Ozone, t	2014	127	53.2	2.4
	2013	188	53.1	3.5
Methanol, t	2014	1 856	53.2	35
	2013	1 830	53.1	34
Water				
Water for own consumption, th. m ³	2014	514 180	53.2	9665
	2013	455 646	53.1	8581
Surface water, th. m ³	2014	22 607	53.2	425
	2013	22 201	53.1	418
Ground water, th. m ³	2014	2 365	53.2	44
	2013	2 417	53.1	46
Effluent, th. m ³	2014	42 991	53.2	808
	2013	45 022	53.1	848

Waste				
Mixed municipal waste, t	2014	93	53.2	1.7
	2013	97	53.1	1.8
Recycled paper and cardboard, t	2014	6	53.2	0.1
	2013	4	53.1	0.1
Recycled packages, t	2014	1	53.2	0.0
	2013	1	53.1	0.0
Recycled biodegradable waste, t	2014	7	53.2	0.1
	2013	5	53.1	0.1
Waste from screens, t	2014	1 085	53.2	20
	2013	984	53.1	19
Recycled sludge, t	2014	32 109	53.2	604
	2013	29 856	53.1	562
Sandtraps grid, t	2014	142	53.2	2.7
	2013	422	53.1	7.9
Recycled excavated stones and soil, t	2014	10 882	53.2	205
	2013	13 341	53.1	251
Asphalt waste, t	2014	1 190	53.2	22
	2013	869	53.1	16
Mixed building waste, t	2014	84	53.2	1.6
	2013	47	53.1	0.9
Concrete and bricks, t	2014	62	53.2	1.2
	2013	53	53.1	1.0
Recycled metal, t	2014	45	53.2	0.8
	2013	14	53.1	0.3
Hazardous waste, t	2014	3	53.2	0.1
	2013	0	53.1	0.0
Other, t	2014	2	53.2	0.0
	2013	79	53.1	1.5
Biological diversity				
Land use, land carrying buildings, m ²	2014	462 000	53.2	8684
	2013	462 000	53.1	8701
Emissions				
Nitrogen dioxide, t	2014	4	53.2	0.1
	2013	3	53.1	0.1
Carbon monoxide, t	2014	4	53.2	0.1
	2013	3	53.1	0.1
Volatile organic compounds, t	2014	0.3	53.2	0.0
	2013	0.2	53.1	0.0
Carbon dioxide, t	2014	3 345	53.2	63
	2013	2 919	53.1	55
Sulphur dioxide, t	2014	0.001	53.2	0.0
	2013	0.001	53.1	0.0
Total solid particles, t	2014	0.004	53.2	0.0
	2013	0.004	53.1	0.0
Hydrogen sulphide, t	2014	17	53.2	0.3
	2013	18	53.1	0.3

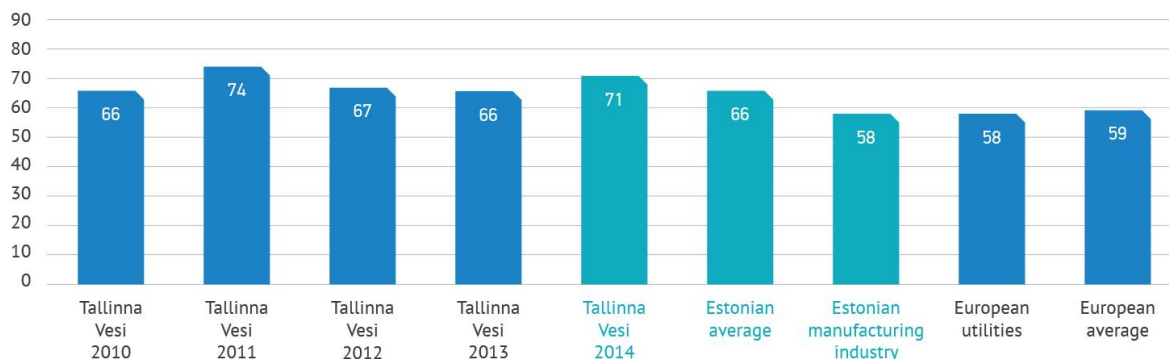
20. Our employees

Significant environmental aspect	Objective
Work environment	We raise environmental awareness of our employees (including work environment) through joint events and systematic internal communications
2014 task	
To carry out at least 1 environmental event for employees, their families and cooperation partners -> 1 event	

Our employees are definitely one of the most important drivers of the Company. Therefore we consider it extremely important to involve employees in the decision-making process, inform them regularly and treat them equally. We use numerous channels for that, such as the meetings of management team members with the staff and the quarterly published internal newsletter. In addition to the notification of the staff, we deem the involvement of people in the best possible manner very important. We also continue to be committed to transparency in communicating both internally and externally. To ensure clarity, transparency and involvement, we make changes in the organization of our work if needed.

Each year, an employee satisfaction and commitment survey is carried out. The results of the 2014 survey were positive. Compared to the previous year, the employee commitment has further increased, reaching clearly higher level than the Estonian average. This year, also the participation rate in the survey was higher than ever before, all together 92% of our employees gave their feedback and opinion.

DIAGRAM 21-1: Employee commitment compared to Europe, 2014



As of the end of 2014, the Company and its Subsidiary employed a total number of 321 employees under permanent employment contracts. Compared to the same period previous year this number has increased by 10, due to the subsidiary starting to provide the new asphaltting service.

Development of employees

The development of employees continues to be one of the main priorities for the Company. Besides the traditional in-service training and development programmes we offered also international trainings for our staff in 2014.

The average age of the staff in the Company and the Subsidiary is high (47 years) and in bigger operational units a considerable number of employees are over 50 years old. Therefore, it is of critical importance for the organization to support the managers in coping with the change of staff

expected to occur in the coming years. We aim to maintain the high level of operational and service performance at the same time.

From the staff development perspective we deem the sharing of knowledge and experience very important. There was a significant increase in in-house guidance and involvement of mentors (incl. outside of the Company).

In 2014, the total number of training days in the Company was 365, which is similar to the year before. Employee induction programme was made more systematic, including its inseparable part which is a training on company's environmental policy. In 2014, following in-service trainings were carried out with an aim to raise employees' environmental awareness: labelling of building materials, occupational hygiene (4 training groups), chemical safety consultancy, modern pipe renovation methods (e.g. no-dig method), training for assessors. Managers attended several international seminars and conferences (e.g. drinking water conference), to obtain new knowledge and inspiration on how to better organize the work.

21. Occupational health and safety

Work environment performance of the Company is in compliance with the requirements of national legislation and international occupational health and safety management system standard OHSAS 18001.

Work environment management system is based on the assessment of risks in the work environment area and execution of activities aimed at preventing or reducing dangerous situations. Workplaces are under constant internal monitoring and internal as well as external audits of the management system are carried out.

In 2014, 2 occupational accidents occurred, one of which had more serious consequences. An employee suffered from a thorax contusion after a fall at Paljassaare Wastewater Treatment Plant. Another a more serious occupational accident occurred in our subsidiary OÜ Watercom, where an employee's foot was left under falling soil and resulted in a fracture of ankle joint. The causes of all occupational accidents were thoroughly analysed by the Work Environment Council and improvement actions were taken to prevent similar accidents from occurring again.

The Company is more and more focusing on the staff awareness. "Terve Tilgu" traffic sign is used to keep the information on avoiding the occupational accidents in the employees' mind. We publish various articles on occupational safety in each edition of the internal newspaper. A so-called occupational health and safety corner was set up in the rest room at the main office, where people can find necessary information and pick up thematic leaflets and brochures etc.

Work environment policy

We aim to be recognized as a water company delivering strong safety performance and providing safe environment for customers and colleagues, by enabling a positive safety culture.

Safety is an inseparable part of our business. It is central to everything we do, and we absolutely do not compromise on it:

- We provide adequate control of the health and safety risks arising from our work activities.
- We consult with our employees on matters affecting their health and safety.
- We are committed to providing safe and healthy working conditions.
- We provide information, instruction and supervision for employees in order to ensure they use safe working practices.
- We are dedicated to ensuring all employees are competent to do their tasks, and provide them with adequate training.
- We ensure a crisis and emergency management system is in place to minimize the impact of such incidents.
- We proactively put into place processes and practices to prevent work accidents and illnesses.
- We provide our employees with benefits which support their wellbeing and encourage them to pursue a healthy lifestyle.
- We implement health and safety management system to ensure our employees work in safe and healthy work environment. It is in full compliance with legal requirements.
- We are dedicated to continuous improvement of company's performance in health and safety.

Work environment trainings

The implementation and results of work environment related actions are largely dependent on the awareness of employees. Therefore, much attention is paid to work environment training, information materials and other actions as well as channels to raise awareness of the issues related to work environment. In 2014, the following training events were carried out in the field of occupational safety:

- First-aid training and in-service training;
- Training and in-service training of Work Environment Council members and work environment representatives;
- Trainings for a person organizing works on a construction site;
- Trainings on machinery safety;
- Practical training on excavation works on sample sites;
- Several follow-up fire-, electrical- and chemicals' safety trainings;
- Trainings on occupational hygiene;
- Chlorine safety training at the Water Treatment Plant focusing on the use of personal protection equipment and first aid in the event of a chlorine emergency;
- Trainings on evacuation;
- In cooperation with 3M Eesti OÜ trainings on hearing protection equipment;
- Training "Work Tool" organized for work environment specialists by the Labour Inspectorate;
- Conference on Ergonomics;
- Various seminars organized by the Network of Health Promoting Workplaces.

Continuous improvement in occupational safety

Similar to the previous years we are committed to the continuous improvement of work environment. Several supporting actions were carried out in 2014 at the treatment plants, water and sewerage networks, laboratories and offices:

- We renewed the Company's work environment risk analysis;
- All Management Team members and the main and substitute members of the Work Environment Council regularly carry out safety audits across the Company and we actively eliminate the deficiencies;
- We hired an Occupational Safety Specialist with the most important task of inspecting the safety compliance on repair and construction sites and other workplaces;
- New rules for using the personal protective equipment in the Company were established making high visibility clothes, helmet and protective footwear mandatory on all repair- and construction sites as well as high visibility clothes, protective footwear and gloves (because of wastewater) on the territories of Water Treatment Plant and Wastewater Treatment Plant;
- New safety instruction for lone working was established, under which the situation of the employees working alone most of the time is regularly checked.



Example of the new safety installation

- The system of instructing employees was improved and the rule to prepare a safety plan before non-routine hazardous works was established;
- New breastworks and handrails were installed to avoid falling, ladders were replaced, safety signs updated, new personal protective equipment were purchased;
- We reconstructed several pumping stations, work rooms, replaced doors, windows and floor covers, repaired staircases, restrooms, and walking as well as driving tracks on permanent sites;
- We performed regular observations, inspections and maintenance of fire safety installations (e.g. fire extinguishers, fire doors, hose systems) in buildings and vehicles; also, weekly check-ups of the sensors and alarms of the automatic fire fighting system were performed;
- In line with the Fire Safety Act we prepared the self-checking and fire safety reports on the structures and submitted those to the Rescue Board.
- We performed maintenance and check-ups on alarm systems, electrical installations, alarm lights, elevators and lifting equipment, up and over doors, ladders, gas meters;
- Consistent measurements of lights and indoor climate were carried out in the departments.
- We improved ventilation and air conditioning systems in the labs and offices;
- During the period of 2013-2015 we replace all office chairs to ensure an ergonomically correct and convenient seating position for the staff.

Promoting occupational health

For the tenth year, we participated in the work of the Network of Health Promoting Workplaces.

We promote healthy life style among its staff by organizing various sports activities for its employees. Staff participated in Stamina series of healthy jogging and walking events and in the run around Lake Ülemiste. Employees have the opportunity to use two gyms, as well as squash and ball courts, and also participate in a yoga class once a week. In cooperation with Meriton Sports club, Kalev Spa and Sparta sports club our staff can use the spas and sports club with special price. A joint Donor Day was organized together with the Blood Donation Centre. Within the Heart Week organized across Estonia we organized various activities: tour to Esko Farm producing various dairy products; each employee received a fruit; those who wanted had an opportunity to measure blood pressure and weigh oneself; the usual yoga classes with specific exercises for heart; the staff had an opportunity to visit Kalev Spa and group classes with special rates; especially heart-healthy meals were available at the canteens in the Company; a photo competition promoting a healthy heart took place also a competition of healthy food recipes.



"Bank of Good Ideas" box

In line with legal requirements, our employees attend regular health checks, which provide the basis for adjustment of working conditions where necessary. In addition to the procedures foreseen by legislation, we provide influenza vaccinations to all interested employees and prophylactic massage according to the prescription of the occupational health doctor.

22. Our community

Significant environmental aspects	Objectives
Stakeholders	We promote environmental awareness of the population and contribute to the higher efficiency of our main activity
Environment	We increase environmental awareness through environmental educational programmes and projects
Community	We engage with community and ethical business projects and support causes linking to our company values
Corporate social responsibility	We are recognised as a flagship company for corporate social responsibility and promote doing business in an ethical and responsible manner
Tasks for 2014	
To carry out at least 1 tap water campaign/event for the population - > 1 campaign	
To carry out at least 1 wastewater campaign/event for the population - > 1 campaign	
To raise environmental awareness among children and young people by organising the "water days" in kindergartens and schools - > 2 000 children	
To continue cooperation with the environmental and educational institutions by developing and introducing materials designed for teachers to help raising environmental awareness among children - > 1 project	
To continue supporting volunteering (e.g. Food Bank) following our sponsoring principles and to support causes linking to our values (Clean Estonia) - > 2 projects	
To continue cooperation with CSR Forum and participate in the annual CSR Index to obtain objective feedback on our activity and find opportunities to develop further - > 88,1%	

We deem it important to be a good neighbour in the community, therefore we support and encourage our employees to actively participate in the community activities.

We understand the impact of our business on the surrounding environment and therefore deem it important that our activities engaged with the interests of different stakeholders. We give our best to do more than required and expected from us in order to cast a positive impact both on the natural environment and on the quality of life of people.

Teamwork

- Also, in addition to their daily work our employees have an important responsibility to live our values through a voluntary participation in various community projects. Also, our employees appear on the photos of the Company's data carrying media.
- Together with the employees of Coca-Cola Hellenic and the Embassy of the United States of America we cleaned the Pikakari Beach within the cleaning up event "Let's do it" for the local community to be able to enjoy the scenic beach area. Over 100 volunteers participated to contribute.



Cleaning up event "Let's do it 2014"

Cooperation and attention

- We have supported the disabled people through the nursery "Õunake" and the Estonian Union of Sports for the Disabled and also the children in Ristiku Basic School. We organized a meeting of Ristiku Basic School and nursery "Õunake" with the Pille Lill Music Fund to give the children an

opportunity to enjoy classical music. Positive emotions are great sources of inspiration and children feel free and open about new musical experience.

- In February 2015, Urve Tiidus the Minister of Culture recognized the companies that have provided a long-term support to culture. We received a thank-you note and a title of "Friend of Culture 2014".
- We belong to the Zoo's Friends Society and proudly sponsor a polar bear girl Nora.
- In cooperation with the city district governments we gave planting soil for free to everybody, who were interested in it to make our city look more fresh and green.
- High quality drinking water was provided at numerous sports and health promotion events. We also provide water for the Flower Festival and ice skating rinks in winter.
- We help to make one of the largest Estonian cultural events happen – Dark Nights Film Festival. In 2014 the festival had approximately 80,000 visitors.
- In 2014, the Responsible Business Forum awarded the Company with the silver mark of sustainable business index. This index helps us to consistently analyse, how to act in a socially responsible manner and design a sustainable business model.



Friend of Culture 2014



ESTONIAN SUSTAINABLE
BUSINESS INDEX
SILVER LEVEL 2014

Quality label 2014

Improved awareness of consumers

- We also keep on working hard to promote the environmental thinking amongst our population. In our messages and activities we encourage them to drink tap water. With our message "Tap water IS drinking water" we draw people's attention to the very good quality of tap water. We also continued our co-operation with restaurants within our campaign "Ask for tap water" so that the customers would have the courage and awareness to ask for tap water when they dine in restaurants.
- 2014 was the Gulf of Finland Year focusing on the quality of sea water and natural environment as a whole. Treatment of wastewater at Paljassaare significantly contributes to a cleaner Baltic Sea. In order for the residents in Tallinn to be able to contribute to cleaner environment and what is even more important, to be able to prevent problems and inconveniences caused by blockages, we continued to communicate the message "Toilet is not a bin!". SAPO i.e. Sanitary Police used in our messaging explained to people, what is allowed to be thrown in the toilet and what could cause blockages.
- We continue contributing to environmental awareness of youth who would value environment. Each year our employees organize group conversations in kindergartens and schools discussing water circulation, ways of saving water and avoiding blockages.
- To date we have developed two sets of water and environmental study materials for teachers in nature studies supporting the national study programme. "Blue classroom" is meant for the nature studies from 4th to 6th grade. In 2014, within the Gulf of Finland Year, we issued a new study material "Blue Classroom: LABORATORY", which is above all suitable for nature studies from 7th to 9th grade. We also organized information days to introduce the study materials to



SAPO campaign 2014

primary school and nature studies' teachers and the teachers of 13 Tallinn schools participated in the information days.

- Besides our main responsibilities – production of drinking water and treatment of wastewater – our treatment plants also have an important role to play in increasing the population's awareness. Each year, we introduce the plants' work to more and more people – in 2014, a total of almost 1,500 visitors took guided tours in the treatment plants.
- To encourage people to protect and value the nature more, we participated in the project "Tours of Wisdom" within the "Back to school" project. In that project classes and schools were called on submitting creative requests to visit the treatment plants. This time 5 schools were interested and of those Põltsamaa Ühisgümnaasium won the contest by writing a song of Lake Ülemiste. [Video of the song.](#)
- Each year we have the traditional open doors day at the treatment plants for those interested. In spring, over 100 people came to learn about the wastewater treatment process. In addition to sports enthusiasts, open doors day at Ülemiste Water Treatment Plant in the end of August brought together a record of over 800 people, who were interested in the plant's work. In addition to the tours at the plant, the visitors were offered delicious water cocktails made on site.

23. EMAS verification

DNV GL Business Assurance Finland Oy Ab as an accredited verifier (FI-V-0002) has examined the environmental management system and the information given in the 2014 environmental report of Tallinna Vesi. It has been verified on the 8th of April 2014 that both the environmental management system and the environmental report (original report is in English) comply with the requirements of EU Council Regulation 1221/2009 of Eco Management and Audit Scheme EMAS. The environmental report is available on the website at www.tallinnavesi.ee. Next report will be published before the end of August 2016.

