AS TALLINNA VESI'S TARIFF APPLICATION AND BUSINESS PLAN FOR THE PERIOD 2011 – 2015

Overview of the Application

Pursuant to § 14^2 section 1 of the PWSSA we are hereby submitting our proposal for the prices of water and waste water services (as our principal services) offered in the Tallinn City and Saue City, area to be levied in 2011-2015 along with supporting documentation for your consideration and review. Pursuant to § 14 section 1 of the PWSSA we are obligated to establish prices for water services and to publicise them 30 days in advance of the price being applied. As per the methodology of our Services Agreement, the annual price change should be applied from January 2011. Therefore, we kindly request for you to review our application within the 30-days deadline stipulated in § 14^2 section 4 of the PWSSA, i.e. by 10.12.2010.12.2010 at the latest. Should you require further data or additional explanations from us or an extension in reviewing our application, please kindly let us know at your earliest convenience . We are aware that until we are able to apply the new prices that will have been checked and approved by yourself, we will need to apply the current price list valid as at 31.10.2010 as per § 16 sec 6 of the PWSSA.

This attached document contains AS Tallinna Vesi's (ASTV) tariff application and business plan for the period 2011 to 2015. This application is based upon the contractual Project Agreements signed with the City of Tallinn of which the key document is the Services Agreement as amended over the period 2002 - 2009. The Services Agreement determines the quality standards that the company must comply with, and the penalties for failure if it does not, and includes contractual tariff levels and a tariff mechanism that describes a charging mechanism that covers all necessary costs and justified profitability. This mechanism has been legally verified as being in accordance with the PWSSA. The Services Agreement is due to continue until 2020, however from a regulatory perspective we believe that a ten year regulatory period could be deemed too long and does not accord with international norms. Therefore ASTV has chosen to make a tariff application for a period of five years from 2011 to 2015. For the avoidance of doubt this application does not cover those activities that are outside the sphere of our regulatory contract with the City of Tallinn and the Decision No 91 made by Saue City Council on 19.03.1998 (appended as Appendix 6 to this report).

It is fully understood that ASTV owns and operates long run assets that require long term planning and investment decisions and to enable this to be achieved a five year horizon is appropriate. In order to make these decisions in the most effective and efficient way ASTV needs to have long term visibility on its required service standards, revenue stream, operating costs and capital investment programme. Without such visibility the company will not be able to plan effectively, which will increase the costs of procurement and will inhibit the implementation of a coherent capital programme. This will reduce the cost effectiveness and quality of service delivered to the customer. In addition banks lending to the company will not be able to have the predictability of revenue streams which will mean that raising external finance will be more difficult and the increase in borrowing costs will lead to an increase in the cost of capital.

This application is principally based on the mature and proven economic principles applied by Ofwat, the water regulator for England and Wales. We feel this methodology is the most appropriate as it is the oldest regulatory model for the water sector in the world which has been continually refined and improved over the last 20 years, and is recognised as the world leading water regulatory regime. Moreover this regime which regulates privatised water companies, similar to ASTV, is clearly recognised as by the Competition Authority (CA) as exemplifying best practice as it has been continually referenced by the CA in their comments and analysis of ASTV.

This business plan based application is made assuming that the changes in current legislation and the methodology being developed by the Competition Authority will use the same key regulatory objectives that are currently being applied to the electricity and gas industries in Estonia. These are:

- protection of electricity users;
- application of regulatory measures that allow companies to remain viable economically and financially, i.e. to recover operating costs and to finance necessary investments out of own and external funds;
- creation of sufficient incentives for companies to carry on their activity more efficiently;
- guarantee of acceptable return on invested capital for investors, i.e. at least equivalent return that they would obtain on investments with the same degree of risk.

ASTV fully believes in an open and transparent approach to economic and quality regulation. The company understands that our customers need to completely understand the rationale behind the tariff calculation and the services they receive, therefore in order to practically demonstrate this, our application and business plan will be published in full on ASTV's website.

Our strategy for 2011 to 2015 is to continue to provide the highest quality service to the citizens of Tallinn they have come to expect and deserve, at an affordable price that respects the terms and conditions of the privatisation agreement signed in 2001.

Our plan and application will consolidate our position as the most efficient and highest quality provider of water and wastewater services in Estonia. The key quality and services improvement standards that underpin our application are as follows:

1) Water quality – over 99% of all samples taken at customers' taps independently verified as fully compliant with EU standards;
2) Remove more pollutants from wastewater than previous years contributing to a cleaner Baltic Sea;
3) Maintain leakage levels in the range of 18-19%, which is some 8% less than our contracted target;
4) Reducing the number and length of unplanned interruptions to supply, targeting an annual average of less than 5 hours per interruption;
5) Targeting less than 1,100 sewer blockages per annum;
6) Improved customer service and experience, 100% of customer complaints responded to within 10 days.

1. BUSINESS OVERVIEW

1.1 General Facts

- AS Tallinna Vesi is the largest water utility company in Estonia, providing drinking water and wastewater disposal services to approximately 1/3 of Estonia's population.
- The Company provides water and wastewater disposal services to over 20,000 customers and 411,000 end-consumers in Tallinn.
- The Company has the exclusive right to provide water and sewerage services in the Tallinn service area until the year 2020.
- 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 main treatment plants: Ülemiste water treatment plant (WTP) and Paljassaare wastewater treatment plant (WWTP).
- The water treatment plant produces an average of 60,000 m3 of water per day.
- Almost 88% of drinking water is produced from surface water at Ülemiste, 12% of the consumers use regional ground water.
- Average water consumption in 2009 was 95 litres per inhabitant (98 litres in 2008).
- Paljassaare WWTP treats on an average 120,000 m3/day.
- The Company has an accredited water laboratory and an accredited wastewater laboratory, which together conducted over 123,000 analyses in 2009.
- The public water supply system comprises almost 925 km of water networks, 15 water pumping stations and 58 ground water borehole pumping stations with 83 boreholes across the service area.
- The public sewerage system comprises almost 870 km of wastewater networks, over 400 km of storm water networks and over 121 sewerage-pumping stations across the service area.
- On an average, the Company employed 327 people in 2009.
- The Company shares are listed on the main list of Tallinn Stock Exchange.

1.1.1. Operational sites

- Head office, sales and service centre and support services in Ädala 10, Tallinn.
- Ülemiste water treatment plant, water and microbiological laboratory in Järvevana road 3, Tallinn.
- Paljassaare wastewater treatment plant, composting fields and wastewater laboratory in Paljassaare põik 14, Tallinn.
- Sludge composting and experimental site in Liikva village, Harju county.
- The catchment area ca 1800 square kilometres in Harju and Järvamaa counties.

1.2. Environmental Legislation

The minimum requirement of the company's 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 the Company's environmental activities are regulated by requirements arising from EU as well as national and local government legislation.

Amongst these the Water Act, the Public Water Supply and Sewerage Act, the Waste Act, the Chemicals Act, the Ambient Air Protection Act and regulations adopted on the basis thereon have the most significant impact on the Company. In order to meet the minimum requirements, the Company

systematically monitors the relevant environmental legislation and amendments thereto. Each month it is determined which area of the Company's activities is affected by the amendments and the managers responsible for the particular areas are notified thereof. Managers of the respective areas ensure that the required changes are carried out.

The full list of applicable legal acts is appended (see appendix 2)

1.2.1. Environmental Permits

The main licensing authority for the Company is the Environmental Board's Harju-Järva-Rapla regional department, who has issued the following environmental permits to the Company:

- 2 special use of water permits
- 2 waste permits
- 2 ambient air pollution permits and 1 special permit for ambient air pollution

In 2009 the Company operated in accordance with the conditions established in the environmental permits, issues related to the environmental permits were solved in cooperation with the Environmental Board's Harju-Järva-Rapla regional department.

1.3. Requirements of the Services Agreement

Besides legislation, the activities of the Company are also regulated by the Services Agreement concluded between the Company and the City of Tallinn for ensuring 97 Levels of Services. Performance of the Service Agreement is supervised by the Supervisory Foundation for the Water Companies in Tallinn, appointed by the local government, to whom the Company annually submits a detailed report on compliance with the requirements of the Service Agreement.

96 Levels of Service out of 97 were met in 2009. The only level of service that the Company did not manage to fulfil in 2009 concerned interruption to supply, which lasted longer than 12 hours. There were 732 interruptions in total and in two cases it took longer than 12 hours to eliminate the leak or emergency. Each year the Company submits detailed reports to the City of Tallinn and the Supervisory Foundation of Tallinn Water Companies regarding compliance with the levels of service in the previous year. The Services agreement, Levels of Service and penalties for failure to meet these service levels are appended to this document (see appendix 1). A copy of the 2009 Levels of Service annual report is appended to this document (see appendix 3).

1.4. Requirements to Contractual Partners

Considering the requirements set for the Company, the Company also requires it's suppliers to meet environmental and work environment requirements.

To ensure the above, the Company has established environmental and work environment criteria for the qualification of suppliers in its procurement procedures. The environmental and work environment related compliance of bidders is assessed on the basis of questionnaires filled by bidders in the course of the tendering procedure. Bidders for construction works must additionally confirm that they apply health and safety and environmental protection measures at the construction sites.

The supervision staff of the Company monitors the environmental and work environment activities of suppliers on site. In the case of bigger contracts (construction works starting from EEK 1,000,000, other services from EEK 200,000 and above) the supervision staff assess, after the term of the contract, the activities of suppliers for ensuring compliance with the requirements. In 2009 the average assessment given to the environmental activities of the suppliers was satisfactory.

In order to improve the awareness of suppliers a 1-day workshop was organised in 2009, where the quality, environment and occupational safety requirements applicable to the Company were analysed in detail. Occupational safety trainings were carried out in addition.

1.5. Treatment Processes

1.5.1. Water Treatment Process

1. Surface water is gathered to lake Ülemiste and is directed to Ülemiste Water Treatment Plant.
2. Raw water passes through screens and microfilters which remove algae and plankton from the water.
3. Water is led into reservoirs where a mixture of ozone in air is injected into the water to deactivate microorganisms and oxidize organic substances.
4. A water treatment chemical coagulant is added to clarify the water.
5. During the clarification phase particulate matter, chemical flocs and precipitates are removed from the water.
6. Water passes through filters. In summer, dependent on the raw water quality 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 which it is pumped to the city water network in accordance with demand.

1.5.2. Wastewater Treatment Process

1. Wastewater collected through the sewerage network is directed into the Main Pumping Station. Storm water is also collected in the combined system. Separate storm water systems where provided to convey the storm water to the storm water outlets.
2. In the mechanical treatment stage, the wastewater is screened to remove larger solids and the grit removal tanks remove grit and sand from the wastewater.
3. Smaller solid particles are removed in the primary sedimentation basins, formed sludge is removed from the process.
4. Coagulant is added to the wastewater for the chemical treatment of the phosphorus.
5. For the biological treatment the wastewater is conducted to the aeration tanks where the vital activity of various bacteria helps to remove nitrogen and biologically decomposing substances from the 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 is injected.
6. The activated sludge is settled in the secondary sedimentation basins.
7. Treated wastewater i.e. effluent is pumped via a deep sea outlet into the sea.
8. Sludge removed during the different phases of the treatment process is pumped to the sludge treatment plant.
9. Sludge is digested and stabilised in anaerobic digesters where bacteria make the organic matter decompose.
10. The biogas created in the course of anaerobic sludge digestion is used for the technological process and heating in the plant.
11. The stabilised sludge is dried and mixed with peat.
12. The outcome – sludge mixture with high nutrient content - is used in cultivation.

1.6. Drinking Water Quality

The customer satisfaction survey has demonstrated that drinking water quality is one of the main factors influencing customer satisfaction. Drinking water quality must comply with the Minister of Social Affairs Decree no. 82 from 31 July 2001 “Potable Water Quality and Control Requirements and

Analysis Methods" (hereinafter referred to as Decree No 82) that originates from the Estonian Water Act and the European Union Drinking Water Directive 98/83/EC.

The Company has a detailed drinking water control programme for 2005-2010, approved by the Tallinn Health Protection Authority, which includes separate quality control requirements for surface water, the water treatment plant, the ground water system and the city network. The frequency of taking samples and the parameters to be checked are determined in the said programme.

Conditions of ground water usage have been determined in the permits for special use of water HR01037 and HR1112 issued to the Company. Although the usage of ground water is limited by the water permits, it is possible to cover the ground water demand and still have sufficient reserves to replace some of the surface water supply in case of a problem of supply from Ülemiste Water Treatment Plant.

Drinking water quality analyses are carried out by the Company's Water Laboratory, which is accredited on the basis of the internationally recognised ISO 17025 standard. In 2009 the Water Laboratory and Microbiology Laboratory performed a total of over 79,000 analyses.

1.6.1. Treated Water Quality at Ülemiste Plant

In 2009 the treated water quality at Ülemiste Water Treatment Plant was compliant with the requirements of Decree No 82. The quality of drinking water is mostly ensured by the quality of surface water and the effectiveness of the treatment process.

1.6.2. Surface Water Quality

In 2009 the quality of raw water taken into 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 checked once per day at the intake to the treatment system.

Raw water pollution indicators, such as total phosphorus (P_{tot}) and total nitrogen (N_{tot}), are checked once per week. Additionally, a detailed in-depth analysis of raw water is carried out once per month in accordance with the drinking water control programme. Surface water quality is dependent on weather conditions – such as precipitation and thaw water, but also on the geographical conditions of the catchment area, moors, wetlands, areas of karst and forest, etc.

Compared to 2008, on the first half year the permanganate oxygen demand increased considerably, but on the second half year the diagram complied with 2008 curve. Water colour indicators were higher in raw water compared to 2008, however, the difference decreased by the end of the year.

PERMANGANATE OXYGEN DEMAND IN RAW WATER 2005 – 2009, mg/l

	2005	2006	2007	2008	2009
COD Mn	10,3	10,6	9,3	9,3	10,2

RAW WATER COLOUR 2005-2009, degrees

	2005	2006	2007	2008	2009
Colour	58	45	43	45	53

DRINKING WATER QUALITY IN ÜLEMISTE WATER TREATMENT PLANT 2005 – 2009

Parameter	Unit	Average results					Decree no 82 EU directive 98/83/EC
		2005	2006	2007	2008	2009	
Odour	points	1	1	1	1	1	Acceptable to consumer

Taste	points	1	1	1	1	1	Acceptable to consumer
Turbidity	NTU	0.17	0.11	0.10	0.13	0.11	1
Colour	Pt mg/l	3	2	2	3	3	Acceptable to consumer
Dry residue	mg/l	286	287	276	274	280	
pH		7.30	7.37	7.36	7.36	7.33	6.5-9.5
Conductivity	µS/cm	441	443	438	441	435	2500
Alkalinity	mg-ekv/l	2.9	3.05	2.72	2.70	2.8	
Total hardness	mg-ekv/l	4.2	4.3	4.15	4.16	4.14	
Temporary hardness	mg-ekv/l	2.9	3.1	2.72	2.70	2.8	
Permanent hardness	mg-ekv/l	1.3	1.2	1.44	1.45	1.35	
Permanganate index (COD Mn)	mg O_2/l	3.5	3.1	3.2	3.2	3.3	5.0
Total organic carbon (TOC)	mg/l	6.9	6.3	6.2	5.9	6	Without unusual changes
Free CO_2	mg/l	17.8	18	14	14	16	
Carbonates CO_3^{2-}	mg/l	0	0	0	0	0	
Bicarbonates HCO_3^-	mg/l	178.0	188	165	166	171	
Chlorides Cl^-	mg/l	26.1	24	25.5	26.8	27	250
Sulphates SO_4^{2-}	mg/l	38.2	37	46.2	40.1	34	250
Orthophosphates PO_4^{3-}	mg/l	0	0	0	<0.01	<0.01	
Fluoride F^-	mg/l	0.15	0.1	0.10	0.09	0.07	1.5
Nitrates NO_3^-	mg/l	2.5	2.4	3.4	3.3	2.7	50
Ammonium NH_4^+	mg/l	0.003	0.003	0.003	0.003	0.003	0.50
Calcium Ca	mg/l	69.9	71.9	67.3	70.3	68.2	
Magnesium Mg	mg/l	7.6	8.7	8.5	8.1	7.8	
Total iron Fe	µg/l	0	0	<10	<10	<10	200
Manganese Mn	µg/l	7.5	5.1	3.0	2.5	6.67	50
Aluminium Al	µg/l	132	88	82	93	94.5	200
Sodium Na	mg/l	6.3	6.7	6.7	7.1	6.84	200
Potassium K	mg/l	2.6	2.7	2.6	2.7	2.77	
Chromium Cr	µg/l	0.56	0.53	0.50	0.66	0.56	50
Copper Cu	µg/l	0.6	0.38	0.67	0.96	0.33	2000
Mercury Hg	µg/l	0.045	0.02	0.02	<0.05	<0.005	1
Lead Pb	µg/l	0.02	0.01	0.03	0.05	0.015	10
Selenium Se	µg/l	0.09	0.28	<0.4	<0.4	<0,4	10
Zinc Zn	µg/l	0.3	0.26	0.41	0.59	0.18	
Acrylic Amide	µg/l	0.028	0.015	0.014	0.02	0.016	0.10
Chloroform	µg/l	21.6	20	20	20	21	
THM	µg/l	26.0	25	25	26	26.3	100*
Enterococh	CFU/100ml	0	0	0	0	0	0
No of colony forming units at 22^0C	CFU/ml	2	2	3	0.5	0	100
Coliform bacteria	CFU/100ml	0	0	0	0	0	0
Escherichia coli	CFU/100ml	0	0	0	0	0	0
Clostridium perfringens	CFU/100ml	0	0	0	0	0	0

** Trihalogenmethane (THM) permitted level decreased from 150 to 100 from 01.01.2009 by EU directive 98/83/EC and Decree no 82*

1.6.3. Ülemiste Sanitary Protection Zone

Lake Ülemiste is the drinking water resource for Tallinn and thus, pursuant to the Water Act, it is not a public water body. Taking into account the requirements set for the water quality of a lake used as a drinking water resource and the need to ensure that these are also met in the future, a sanitary protection zone of Lake Ülemiste catchment area was confirmed on 2009. The sanitary protection zone shall include 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. 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 intake facilities and forest maintenance, mowing of grass plants and water monitoring.

1.6.4. Efficiency of The Water Treatment Process

Requirements established with regard to raw water quality are the basis for the design of the treatment process. Based on Lake Ülemiste raw water quality the use of physicochemical treatment – prechlorination, coagulation, sedimentation, filtering and disinfection – is foreseen by legislative acts for ensuring drinking water quality. Ülemiste Water Treatment Plant treatment process is more efficient than prescribed by the compulsory requirements, as ozonation, which ensures the high quality of drinking water more effectively, is used instead of prechlorination and preliminary filtration. Moreover, ozone is an environmentally friendlier and safer chemical than chlorine.

Over the recent years activated carbon has been used during the summer for improving drinking water odour and taste as well as for reducing the organic matter content. No significant change in the organic matter content has been noted, but a positive shift was observed as regards the functioning of the technological process – the odour accompanying the flushing of sedimentation tanks was improved.

1.6.5. Ground Water Quality

Approximately 10% of consumers in Tallinn, in the districts of Nõmme, Pirita, Merivälja, Laagri, Tiskre and Saue City, are supplied with water produced from the Cambrian-Vendi or Cambrian-Ordovician aquifers.

In 2009, the quality of drinking water at the borehole pumping stations complied with the requirements of Decree no. 82 of the Ministry of Social Affairs. There were no cases of ground water pollution or potential pollution in 2009, demanding notification to the City and Tallinn Health Protection Authority.

Pursuant to the requirements established in the special use of water permits and to the drinking water control programme the Company monitors all quality parameters, which are important in evaluating the situation.

Water samples are taken from all boreholes, which are in use in order to carry out a detailed chemical analysis. In addition to the full chemical analysis required by the water permit, the Company also studies the content of 12 micro-components and analyses the water from both the Cambrian-Vendi and the Cambrian-Ordovician aquifer. The Company also partially tests ground water for substances listed as dangerous to the water environment in the Water Act, e.g. mercury, antimony, arsenic, cadmium, boron, barium and others. In addition, the Company is testing the quality of purified ground water quality (iron, manganese, ammonium) in 21 ground water reservoirs.

According to the Water Framework Directive (Directive 2000/60/EC), the qualitative or chemical condition of ground water is considered good, if the concentration of pollutants does not indicate an inflow of salty water or other water and does not exceed the respective quality standards.

The natural radioactivity of Estonian ground water has been thoroughly studied by the Geological Survey of Estonia as well as the Estonian Radiation Centre and the outcome of these studies show that the majority of ground water samples from the Cambrian-Vendi aquifer do not meet the levels stipulated in the Estonian regulation. Samples taken from the Company's borehole pumping stations showed that in the ground water pumping stations in the areas of Nõmme and Pirita-Merivälja the effective dose is above the indicative dose value (in range from 0.11 up to 0.41 mSv/an). Consumers have been informed about the levels of radionuclides content in the Company's borewells via the Company's website. General information on this topic is also available on the website of the Health Board.

The Ministry of Social Affairs together with the Health Board and Italian partners carried out a Twinning Light Project EE06-IB-TWP-ESC-03 *"Estimation of concentrations of radionuclides in Estonian ground waters and related health risk"* in 2009. The Company also participated in this project.

The final report of the project was submitted by the consultants to the Health Protection Inspectorate on the 8th of October 2009. The application of the proposed changes requires significant volume of resources and technical solutions from the local governments and water companies. Before implementing the improvement measures, the Health Board is currently leading a process of assessing the existence of necessary resources and requirements.

1.6.6. Ground Water Treatment

The ground water used for producing drinking water is of quality classes I-III. Quality class I water needs no treatment – all Cambrian-Ordovician aquifer boreholes in Nõmme fall under this category. Ground water from the Cambrian-Vendi aquifer, which forms the main part of ground water used as a source of drinking water, mostly falls under quality classes II and III and needs corresponding treatment. Water quality classes II and III are usually caused by an excessive iron, manganese and ammonium content and the non-compliance of colour with the raw water requirements.

The Company uses filters and aeration as ground water treatment methods to ensure drinking water compliance with requirements. Pressure filters have been installed to ground water borehole-pumping stations for the removal of excess iron and manganese. Raw ground water is aerated and filtered in the pressure filters, no chemicals are used. Water samples taken show that treatment reduces water turbidity, iron and manganese content, improves colour and the stability index and increases the content of oxygen in the water.

The mixing of water from the two aquifers is also used for improving water quality.

The Company's ground water monitoring data are used in national ground water monitoring when evaluating the quality conditions of ground water in the region of Tallinn.

GROUND WATER QUALITY IN PUMPING STATIONS 2005 - 2009

Parameter	Unit	Average results					Decree no 82 EU directive 98/83/EC
		2005	2006	2007	2008	2009	
Odour	points	1	1.1	1.1	1.02	1.12	Acceptable to consumer
Taste	points	1	1	1	1	1	Acceptable to consumer
Temperature	°C	9.1	9.03	8.9	8.3	7.75	

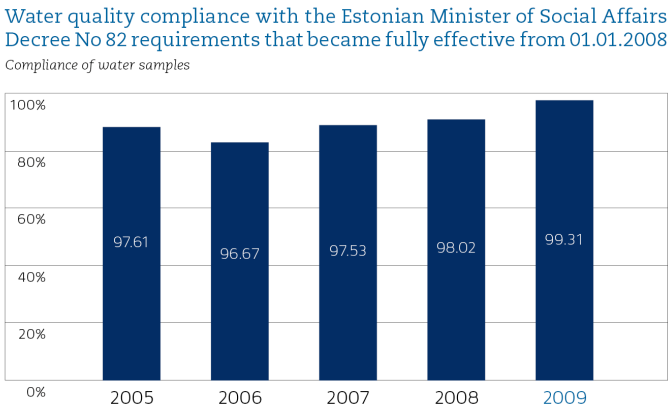
Colour	mg Pt/l	7.2	4.98	4.56	3.69	4.17	Acceptable to consumer
Turbidity	NTU	1.38	0.95	0.46	0.37	0.45	Acceptable to consumer
Dissolved O_2	mg/l	4.6	5.24	5.3	6.6	6.5	
pH	pH unit	8.03	8.02	8	8	7.99	>6.5 and <9.5
Conductivity	µS/cm	583	578	568	596	594	2500
Permaganate index (COD Mn)*	O_2mg/l	1.02	0.7	0.7	0.75	0.75	5.0
Total organic carbon	mg/l	1.3	1.2	1.0	0.8	0.72	Without unusual changes
Alkalinity	mg-ekv/l	2.57	2.55	2.51	2.52	2.54	
Total hardness	mg-ekv/l	3.33	3.37	3.27	3.51	3.57	
Temporary hardness	mg-ekv/l	2.53	2.51	2.49	2.50	2.52	
Permanent hardness	mg-ekv/l	0.8	0.87	0.78	1.01	1.05	
Free CO_2	mg/l	3	3	3	3	3.39	
Total iron Fe	mg/l	0.13	0.08	0.05	0.02	0.055	0.2
Fluoride F^-	mg/l	0.69	0.58	0.58	0.61	0.61	1.5
Manganese Mn	mg/l	0.039	0.034	0.024	0.009	0.0169	0.05
Ammonium NH_4^+	mg/l	0.273	0.202	0.143	0.114	0.127	0.5
Nitrites NO_2^-	mg/l	0.012	0.014	0.012	0.009	0.0114	0.5
Nitrates NO_3^-	mg/l	0.54	0.55	0.731	0.743	0.788	50
Stability index		0.18	0.19	0.15	0.14	0.14	
Sulfides S_2^-	mg/l	0.006	0.005	0.004	0.005	0.0045	
Dry residue	mg/l	286	300	307	324	346	
Calcium Ca	mg/l	48	48	47	50	50	
Magnesium Mg	mg/l	13	13	12	13	11	
Sodium Na	mg/l	32	45	42	43	47.4	200
Potassium K	mg/l	6.3	6.8	6.7	6.7	7.12	
Sulphates SO_4^{2-}	mg/l	23	29	14	19	18.5	250
Bicarbonates HCO_3^-	mg/l	155.9	155.5	152.9	153.6	154.9	
Chlorides Cl^-	mg/l	95.8	90.4	90.1	101	89	250
Boron B	mg/l	0.18	0.15	0.17	0.17	0.1558	1
Aluminium Al	µg/l	2.25	1.14	0.91	1.27	2.843	200
Arsenic As	µg/l	0.11	0.09	0.09	0.10	0.106	10
Cadmium Cd	µg/l	<0.01	<0.01	<0.01	<0.01	0.01	5
Chromium Cr	µg/l	0.47	0.51	0.45	0.58	0.5	50
Copper Cu	mg/l	0.0041	0.003	0.0045	0.0064	0.0067	2
Mercury Hg	µg/l	<0.01	<0.02	<0.02	<0.05	<0.05	1
Nickel Ni	µg/l	2.86	1.59	1.81	2.40	2.1	20
Lead Pb	µg/l	0.37	0.12	0.13	0.41	0.325	10
Antimony Sb	µg/l	0.03	0.01	0.009	0.01	0.01	5
Selenium Se	µg/l	1.17	0.54	0.44	0.4	<0.4	10
Enterococci	CFU/100ml	0	0	0	0	0	0
Colony forming units 22°C	CFU/ml	10	6	13	5	12	Without unusual changes

Coliform bacteria	CFU/100ml	0	0	0	0	0	0
Escherichia coli	CFU/100ml	0	0	0	0	0	0

**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.*
***Sampling for dry residue, potassium, sulphate, sodium, boron, aluminium, arsenic, cadmium, chromium, copper, mercury, nickel, lead, antimony, selenium and magnesium have not been required by the Decree No 82. However, the listed substances have been determined in the drinking water sources and the content of these does not change after going through filters.*

1.6.7. Water Quality at the Consumers Premises

Company has analysed drinking water quality in compliance with Drinking Water Quality Monitoring Program approved by the Tallinn Health Protection Inspectorate. During the year the Company took samples twice a month from sampling points agreed with the Health Protection Inspectorate. A total of 2 890 samples were taken from the city water network in 2009. In 2009, 99.31% of all samples complied, including 99.97% of microbiological samples to requirements of Directive 98/83/EU and Minister of Social Affairs Decree No 82.



1.7. Water Networks Maintenance And Investments

Preventive works in the form of networks flushing and water supply network renovation are carried out to maintain and improve the quality of drinking water used at homes of the customers. 232 km of water pipes were cleaned using the pressure washing method in 2009. During this cleaning process, air is directed into the water pipes where it mixes with water, helping to remove sediments from the walls of the pipes, which is one of the main methods for improving the water quality in distribution pipes.

	As at 31 December								
	2001	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**
Total length of water distribution pipes and mains (km)	818	835	851	860	874	885	894	909	925
Number of customer connections (thousands)	18 759	18 923	19 205	19 469	19 488	19 509	19 535	19 621	19 701

The Company considers the condition of the water pipes and mains in its water distribution network generally to be adequate for its purposes. The Company considers the age of the water pipes and mains

generally to be good. The following table sets out the age of the Company's water pipes and mains as at 31 December 2009:

	As at 31 December 2009	
	Length	**Percentage of total**
	(km)	*(%)*
10 years or less	240	26,0
11 to 20 years	88	9,2
21 to 30 years	86	9,3
31 to 40 years	168	18,2
41 to 50 years	109	11,6
51 to 60 years	79	8,5
Over 60 years	158	17,1
Total	925	100

	As at 31 December 2009	
	Length	**Length**
	(km)	*(%)*
Cast iron	499	54,0
Steel	51	5,0
Polyethylene	261	28,0
Other plastic materials	27	3,0
Other (1)	87	10,0
Total	925	100

CLEANED WATER NETWORK, 2005-2009, km

	2005	**2006**	**2007**	**2008**	**2009**
km	236	238	227	229	232

Investments in replacing old water pipes and network extensions have facilitated improvement in water quality and more efficient usage of water resources. 23.8 km of water pipes were renovated and 5.5 km of new pipes were constructed in 2009, creating the opportunity of connecting 80 new properties to the public water supply network.

WATER NETWORK RECONSTRUCTION 2005-2009, km

	2005	**2006**	**2007**	**2008**	**2009**
Reconstructions	15.8	6.4	6.9	16.7	23.8

1.8. Usage Of Water Resources

1.8.1. Special Use of Water

The activities of water undertaking in using water resources are regulated by the Water Act and its implementing provisions. For operating, a water company must have a permit for special use of water and pay a charge for the water resource used.

The permit for special use of water defines different activities, for instance the amount of water which the Company may extract, water quality monitoring requirements, requirements set for accounting for water extracted, the permitted limits of pollutants contained in effluent, pollutants monitoring requirements and measures reducing the impact of special use of water.

All requirements established in the permits for special use of water were met in 2009.

The fee for special use of water is paid for the amount of water taken into Ülemiste Water Treatment Plant and for water pumped out of ground water aquifers. In 2009 the fee for special use of water amounted to 3,3% of the operating costs.

VALID WATER PERMITS OF AS TALLINNA VESI

Permit	Valid until	Description of special use of water
Water Permit no HR01037 (L.VV.HA-171414)	01.04.2013	**Tallinn public water supply and sewerage system main licensed 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 Ordivician-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.
Water Permit no HR1112 (L.VV.HA-194367)	31.10.2013	**Saue City, Harju County** Extraction of ground water from boreholes, over 5 m3/day. Collection of wastewater and directing wastewater to Paljassaare Wastewater Treatment Plant owned by ASTV.

1.8.2. Usage of Surface Water Resources

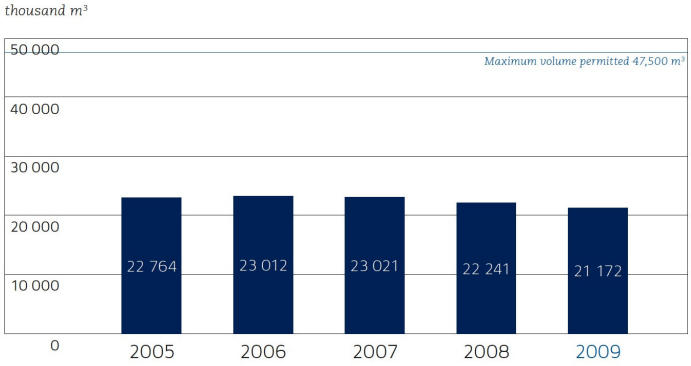
The Company receives surface water from an extensive water catchment system encompassing the river basins of Pirita, Jägala and Soodla River with a total area of ca 1800 km^2, covering mostly the Harju sub-basin. The water catchment system consists on hydropoints constructed on rivers and of water reservoirs as well as the connecting canals.

The most important water reservoir is the Lake Ülemiste with a net volume of 15,8 million m^3. Additional water reserves for dry periods have been accumulated to Paunküla water reservoir on the headwaters of River Pirita (9,9 million m^3) and to Soodla water reservoir on River Soodla (7,4 million m^3).

The extent of water resources in Tallinn's surface water catchment system primarily depends on the amount of precipitation and its distribution over the year. In a year of average rainfall approximately 50% of the possible water resources in the system are used up.

In the end of 2008 the water levels and runoff were high, which had a strong impact also on the water levels in early 2009 and the runoff of rivers in 2009 as a whole was higher than the long-term average. Territorial distribution of runoffs was very uneven. Even within the Tallinn surface water catchment area the monthly average flow volumes varied significantly during some summer months and were substantially lower than long-term average flow volumes. Water resources of Lake Ülemiste were supplemented from mid-May till early October. Water resources of Paunküla and Soodla water reservoirs were not used in 2009.

Usage of surface water from Lake Ülemiste and compliance with special use of water permit no HR01037



Continuous overview of the flow amounts allows the Company to use water resources in a more sustainable way. In order to regulate water resources in an optimal and precise manner, water metering points have been constructed to all hydropoints, allowing the measurement of both the flow amounts directed into canals as well as the so-called sanitary flow amounts remaining in the rivers. Measuring is carried out on a regular basis, following the requirements of the special use of water permit.

1.8.3. Usage of Ground Water

The Company regularly measures ground water levels in order to continuously control the state of Tallinn's ground water resources. Automatic hydrostatic pressure sensors, enabling the measurement of the ground water level, have been installed at all of the Company's operating ground water facilities. Measurement of the water level in boreholes shows an increase in the pressure level of the aquifers in use and thus also the recovery of the ground water resources.

The Company met all requirements established in the special use of water permits in 2009.

USAGE OF GROUND WATER AND COMPLIANCE WITH SPECIAL USE OF WATER PERMITS NO HR01037, HR1112 M^3

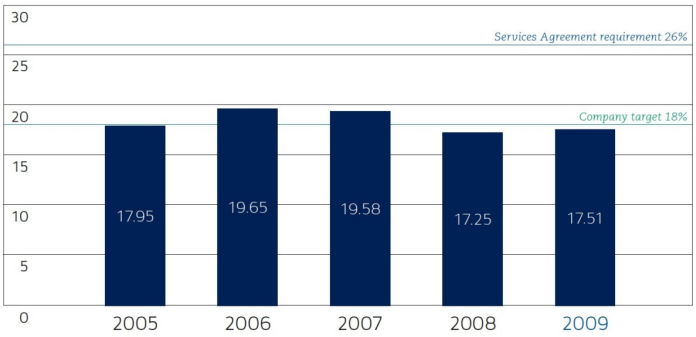
	2005	**2006**	**2007**	**2008**	**2009**
Actual usage by Tallinn	2,532,519	2,447,792	2,457,784	2,450,533	2,552,685
Incl from Cambrian-Vendi aquifer	2,246,809	2,130,310	2,134,427	2,168,265	2,186,521
Maximum volume permitted	6,880,250	6,880,250	6,880,250	6,676,945	6,676,945
Actual usage by Saue	207,102	249,298	247,553	214,028	202,621
Incl from Cambrian-Vendi aquifer	183,261	221,389	233,682	166,770	146,184
Maximum volume permitted	460,250	460,250	460,250	474,500	474,500

1.9. Leakages

Another important aspect of water usage is the reduction of water losses in the network. By the end of 2009 the Company achieved a leakage level of 17,51% which is better than the Company's commitment in the Service Agreement (26%). To achieve this, new leakage detection and remote reading devices were obtained and remote control system was upgraded.

Leakages level 2005-2009

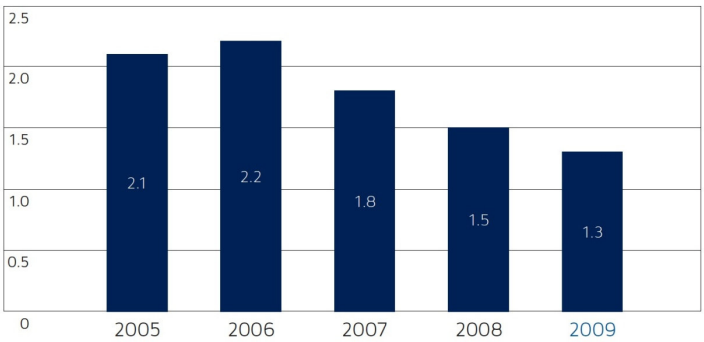
in precentage terms



Quick discovery and liquidation of leakages are instrumental in retaining the leakages level reached and in reducing it further. Daily work is supported by an updated water supply network information system, leakages specialists have a special equipment for leakage detection, and along with the network zoning and distance reading system this allows to detect possible water leakages on the network faster.

Average time for liquidation of leakages 2005-2009

in days



The Company will continue work in 2010 to maintain and further reduce the leakages level in order to achieve the optimum leakages level. The optimum leakages level is considered to be the level where the further reduction of leakages would cost more than water production. Factors such as the cost of finding and repairing leakages and the cost of water production are taken into account in calculating the optimum leakages level.

1.10. Water Metering

All customers of the Company have been equipped with water meters. In total over 20 000 water meters have been installed to customers' connection points, facilitating the reaching of more accurate accounting for the usage of water resources.

Starting from 2005 we have taken into use the more reliable and accurate single jet class C water meters. As a result, the number of expert analyses ordered by customers for verifying the accuracy of the water meters has decreased – while a total of 540 expert analyses were carried out in 2007, this number dropped to 391 in 2008 and 374 in 2009.
The Company has the obligation to replace water meters in every two years and the replacement of water meters takes place on the basis of a respective programme. The 2009 objective was to replace 9,750 water meters, which was achieved.

1.11. Wastewater Collection

The main measures for ensuring the collection and discharge of wastewater are linked to preventive flushing of wastewater networks as well as sewerage and storm water networks reconstructions and extensions, additionally wastewater concentration levels are regularly monitored in order to prevent failures of the treatment process.

	2001	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**
Wastewater and combined sewer lines (km)	643	679	714	728	747	753	778	821	870
Stormwater drains (km)	283	302	310	317	328	359	375	392	399
Number of customer connections	12 274	12 983	14 123	14 736	14 957	15 267	15 885	17 089	18 512

The following table sets out the age of the Company's sewerage and stormwater networks as at 31 December 2004 and 31 December 2009:

	2004				**2009**			
	Combined		Stormwater		Combined		Stormwater	
	km	*percent*	*km*	*percent*	*km*	*percent*	*km*	*percent*
10 years or less	221	30,4	66	20,8	313	35,9	116	29,0
11 to 20 years	104	14,3	60	18,9	114	13,1	45	11,3
21 to 30 years	163	22,4	107	33,8	137	15,7	90	22,5
31 to 40 years	96	13,2	63	19,9	136	15,6	96	24,2
41 to 50 years	59	8,1	13	4,1	75	8,6	40	10,0
51 to 60 years	17	2,3	–	–	38	4,4	2	0,5
Over 60 years	68	9,3	8	2,5	58	6,6	10	2,5
Total					**870**	**100**	**399**	**100**

The following table sets out the materials used in the Company's wastewater, combined sewer and stormwater networks, together with their respective lengths, as at 31 December 2004 and 31 December 2009:

	2004				**2009**			
	Combined		Stormwater		Combined		Stormwater	
	km	percent	km	percent	km	percent	km	percent
Concrete	240	33	147	46,4	223	25,6	142	35,7
Plastic	254	34,9	87	27,4	388	44,6	154	38,5
Asbestos cement	136	18,7	72	22,7	147	16,9	87	21,7
Ceramics	48	6,6	9	2,8	32	3,7	10	2,6
Cast iron	35	4,8	1	0,3	32	3,7	3	0,9
Brick	3	0,4	1	0,3	3	0,3	1	0,2
Other	13	1,8	–	–	45	5,1	2	0,4
Total	**728**	**100**	**317**	**100**	**870**	**100**	**399**	**100**

1.11.1. Cleaning and Maintenance of the Wastewater Network

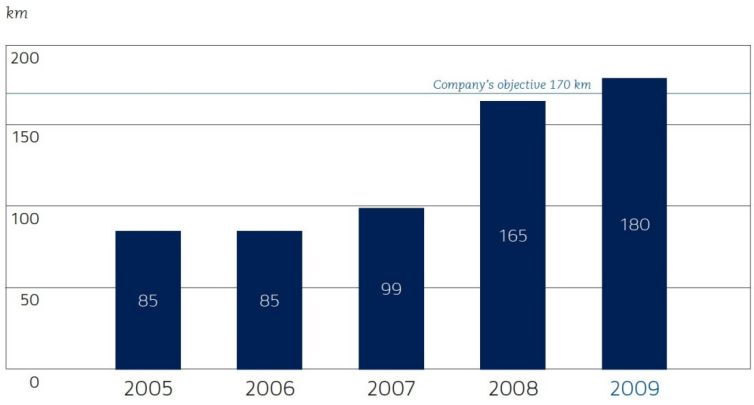
The purpose of wastewater network cleaning is preventive maintenance in order to avoid flooding and reduce blockages. At the same time it must be noted that pressure washing may not directly reduce the number of blockages as it depends on various factors.

Blockages are mainly caused by sediments settling in wastewater pipes. The lower water consumption of recent years has resulted in smaller wastewater flow amounts and flow speeds, which in turn increases the risk of blockages. Additionally the sewerage network extension should also be taken into account when assessing the total number of blockages.

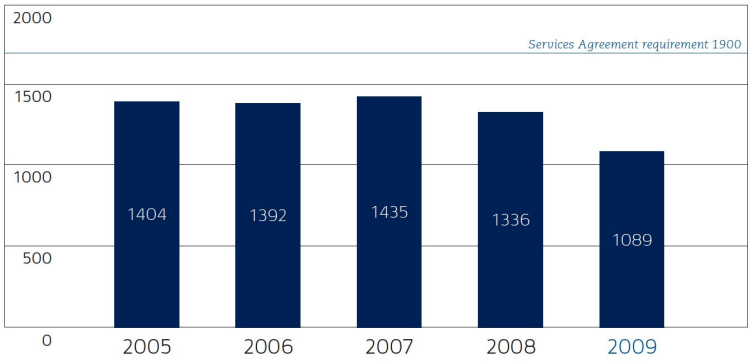
The Company employs three jetting and suction trucks for flushing the network. The newest of them is a recycling combination jetting and suction truck, unique in Estonia, which was taken into operation in 2007. For flushing the network a flow speed is first created with high pressure, flushing sediments into a cesspit. Sediments are thereafter collected into jetting and suction truck and transported to the wastewater treatment plant. The recycle combination jetting and suction tank allows the repeated use of the water necessary for flushing.

The length of network flushed has increased each year and in 2009, a total of 180 km of pipes were flushed. The number of blockages has reduced by 18.5% compared to 2008.

Wastewater network cleaned 2005-2009



Number of blockages 2005-2009



1.11.2. Wastewater Networks Reconstruction and Network Extensions

In 2009 the Company kept on renovating the existing wastewater network and constructing new sewerage and storm water system.

In 2009 the wastewater network extensions were carried out in the districts of Nõmme, Kristiine, Pirita, Haabersti and City Center areas. The bulk of storm water network construction activities took place in Nõmme, Kristiine and City Center areas.

Wastewater and storm water network reconstruction and extensions 2005-2009

km

	2005	2006	2007	2008	2009
Reconstructions	5,3	5,6	5,2	5,9	6,4
Wastewater network extensions	18,5	6,8	13	34	42,8
Storm water network extensions	10,8	6,3	11,5	14	8,2

1.11.3. Controlling Overpollution Caused by Customers

In order to ensure acceptable concentrations of pollution in the wastewater reaching the wastewater treatment plant, the Wastewater Inspectorate of the Company regularly monitors and checks the compliance with regulatory requirements at industrial – commercial sites where wastewater is discharged into the public sewerage system. The majority of the industrial wastewater in the sewerage system is comprised of wastewater from the food processing industry.

The Wastewater Inspectorate has the right to take wastewater samples in order to check the wastewater facilities on sites and to identify overpollution caused by customers. In 2009, all together 1 499 wastewater samples were taken at customers' premises.

Based on the results of wastewater sampling the pollution group is determined, providing the Company with the right to charge the customer for over pollution fee. In 2009, the Wastewater Inspectorate made 569 control raids to the sites. Throughout these raids, 394 customers who had caused overpollution were identified and all together 937 over pollution invoices were issued to the customers.

Information on the average pollution indicators of major industries is also regularly submitted to the Environmental Board's Harju-Järva-Rapla regional department.

1.11.4. Storm Water Outlets

In 2009 the Company monitored, pursuant to the requirements set forth in the water permit, 17 storm water outlets, the largest of which are the Lasnamäe, Harku and Mustoja outlets. A new outlet was added in 2009: OÜ Männiku Auto.

Samples for determining pollutants are taken regularly from stormwater outlets pursuant to the sampling procedure determined in the special use of water permit HR01037. Upon agreement with local government four storm water outlets have been equipped with local treatment facilities such as sand and oil traps, in order to avoid possible environment pollution. Maintenance and cleaning of traps takes place regularly once a month.

The requirements set forth in the water permit were met in 2009.

In total 5,468,711 m^3 of stormwater, carrying pollutants to the environment, was discharged trough these outlets in 2009. Pursuant to Environmental Charges Act pollution charge was not applied.

STORM WATER VOLUME 2005-2009, m^3

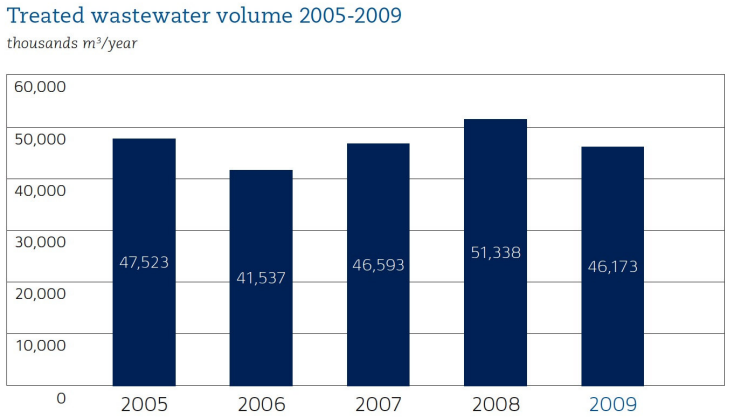
	2005	2006	2007	2008	2009
Storm water volume	4 206 384	3 032 757	5 180 175	5 414 016	5 468 711

POLLUTANTS FROM THE MAIN OUTLETS 2005-2009, in tons

	2005	2006	2007	2008	2009
Suspended solids	60	43	89	109	90.9
Oil products	4.8	3.4	3.6	4.5	3.4

1.11.5. Wastewater Treatment Results

46,172,784 m^3 of wastewater was treated at Paljassaare Wastewater Treatment Plant in 2009. Compared to 2008, the wastewater volume has decreased by 10%, partly due to the stressful economical situation and, to a lesser extent, smaller amount of precipitation in the first three quarters of 2009.



The quality of water discharged to the sea is set by legislation and the special use of water permit HR01037. The concentration of pollutants in sewage led to the treatment plant and in the wastewater led from treatment, as well as the efficiency of the treatment process are monitored in order to assess wastewater quality. The following are the more significant indicators monitored:

- Biological oxygen demand (BOD_7) shows the amount of oxygen required for the defined biological decomposition of organic matter in the course of 7 days;
- Total phosphorus (P_{tot}) and total nitrogen (N_{tot}) are elements contained in nutrient salts, which increase the growth of plankton in water. If the content of nutrient salts is too high, such growth can be so strong that oxygen is used up and a shortage of oxygen arises;
- Suspended solids (SS) shows the volume of solid matter in water which is caught in a filter with a defined mesh size;
- Chemical oxygen demand (COD-Cr) is a measure of the decomposition of organic matter, measured as the consumption of oxygen in chemical oxidation of all organic matter in water;
- Oil products show the amount of light (like petroleum) and heavy (like heavy fuel oil) oil products.

Pollution loads are generally similar to 2008, although the amount of suspended solids has decreased (6%). At the same time the daily pollution loads were still uneven, varying by 3-6 times for different pollutants and the high peaks of pollution loads are still related to heavy rains, which refers to the fact that the pollutants are washed with storm water from the City's territory into combined sewer system. The wastewater laboratory conducted ca 44,000 analyses in 2009.

Amounts of pollutants coming into the Treatment Plant and discharged into the sea 2005-2009

in tons

The treatment effectiveness for all contractual pollution components was higher in 2009 than in previous years, except for oil products, which can be explained with the decrease of oil products pollution in the influent over the last years.

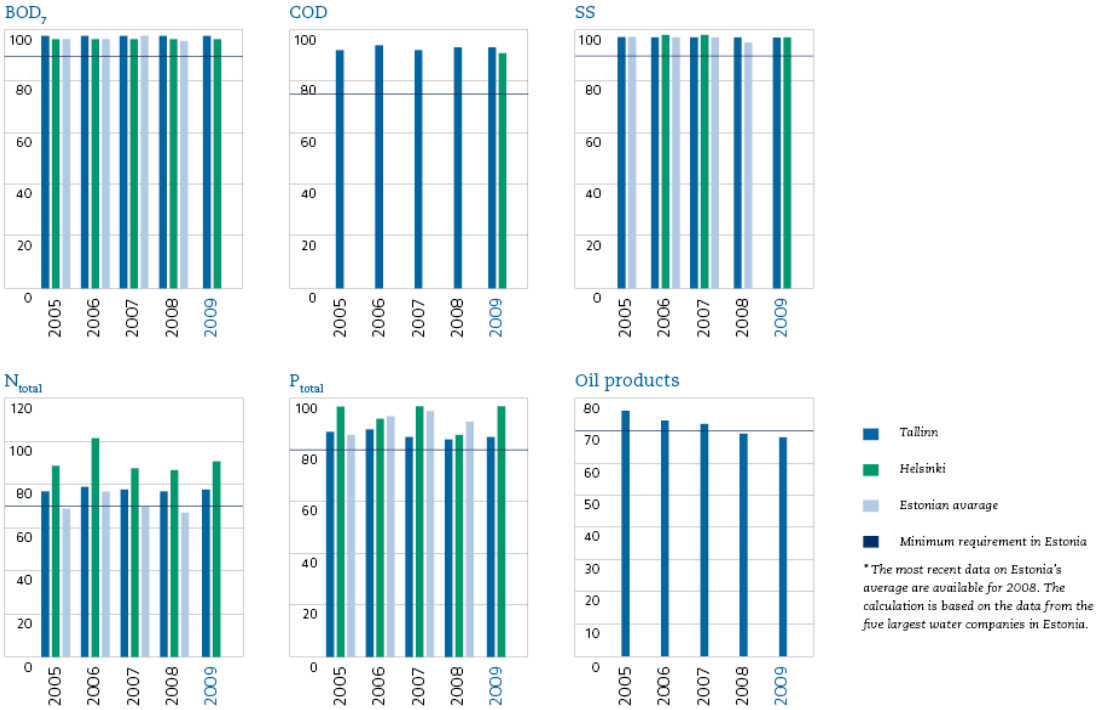
In 2009 operation was continuously improved in all the stages of the treatment process, in order to achieve maximum treatment results in the conditions where the pollution loads (especially for nitrogen compounds) exceed the process capacity. Despite the high treatment efficiency, which was achieved with excellent operating and without any limits of chemicals and power consumption, the stretched target for the nitrogen compounds was not achieved in II and III quarter. However, compliance for the nitrogen compounds as an annual average was achieved as required by the law.

Average pollution indicators in treated wastewater 2005-2009

compared to regulatory requirements and the results of Helsingin Vesi Oy, mg/l

Wastewater Treatment Plant treatment efficiency 2005-2009

in percentage terms, compared to regulatory requirements, Estonia's average results of Helsingin Vesi Oy, mg/l



** The most recent data on Estonia's average are available for 2008. The calculation is based on the data from the five largest water companies in Estonia.*

1.11.6. Outlets to the Sea

No untreated wastewater was discharged into the sea in 2009.

Throughout the year, 64 181 m³ of highly diluted wastewater that underwent the mechanical treatment was conducted to the sea through the deep-sea outlet due to the shock loads that exceeded the biological treatment capacity. The majority of partly treated wastewater was conducted to the sea in July, August, September and October during heavy rains, i.e. in extraordinary weather conditions.

WASTEWATER TREATMENT PLANT OVERFLOWS 2005-2009, m^3/year

	2005	2006	2007	2008	2009
Untreated wastewater discharged to the sea	131 000	0	0	12 489	0
Partly treated wastewater discharged to the sea	42,000	66,000	395,810	61,386	64,181

1.11.7. Environmental Charges

The Company has the obligation to pay a pollution charge for pollutants discharged to water bodies. Taxable pollutants contained in treated effluent and storm water, which are established for the specific outlet in the special use of water permit, are included in the pollution charge calculations.

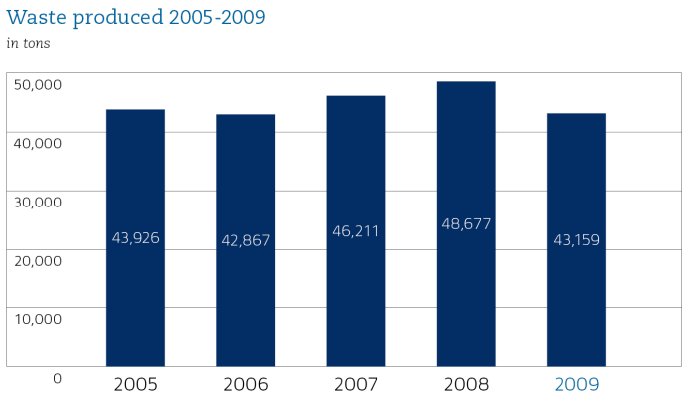
Both the receiving water coefficient of the specific outlet as well as compliance with the pollutant limit value in effluent are taken into account in pollution charge calculations. In case the limit value is exceeded, a ten-fold pollution charge is set for the exceeding amounts of pollutants; if the pollutant levels remain below the limit value or are equal to it, legislation foresees a possibility to apply for a 50% reduction of the pollution charge. A reduction of the pollution charge is only possible when the results of all outlets comply with the water permit requirements.

In 2009 the Company had a possibility to apply for a 50% reduction of the pollution charge for two quarters. The pollution charge amounted to 4.85% of operating expenses compared to 5% in 2008.

1.12. Waste Management

A total of 43,159 tons of waste, which is 5 tons less than during the previous year, was produced in Company in 2009.

Most of the waste produced is non-hazardous waste. Majority of Company's waste is produced at the Wastewater Treatment Plant and in the Networks.



1.12.1. Waste Related to Wastewater Treatment

The largest share, i.e. over 70% of none-hazardous waste was wastewater sludge as a by-product from the wastewater treatment process. Other treatment process related waste such as waste from screens and sand traps' sludge is also produced in significant amounts.

The amount of sludge, but also of waste from screens and sand trap grids, depends directly on the amount of incoming wastewater, the weather conditions and the efficiency of the city's road cleaning service. The amount of sludge was less in 2009, but waste from screens was collected more than in 2008.

All sludge is reused, the Company stopped depositing it to landfill in 2003. In additional to wastewater sludge processing, possibilities for additional treatment of other waste created in wastewater treatment and reduction of waste going to landfill are explored. The possibility of washing screen waste and sand trap's sludge produced during mechanical treatment prior to transportation to landfill was also considered.

In 2008 one screen waste press with a washer was installed for testing at the screens used for removing large waste. Testing showed that it is reasonable to systematically regulate the volume of water required for washing the waste and it was decided to combine the employment of waste pressed with washers with the entire mechanical treatment reconstruction project. This project, aimed at reducing the volume of waste and increasing the efficiency of mechanical treatment, continued in 2009.

1.12.2. Excavation Waste

The amount of excavated soil and stones, which form the bulk of the waste produced at networks maintenance and repair works, has been relatively similar over the past few years. In connection with the amendments to the requirements of local government excavation regulation and supervision in May 2008, which set an obligation for performers of excavation works to carry out asphalt restoration works on a couple of major sites the amount of asphalt waste has increased significantly in 2008 and 2009.

1.12.3. Sorted Office Waste

In 2009 the Company continued to separate paper and cardboards as well as packages from mixed municipal waste, in order to allow further recycling and use. The proportion of electronic bills to customers was increased and double-sided printing was made automatic, where possible, in order to reduce the amount of paper used. Starting from 2008, the Company also collects biodegradable waste separately from mixed municipal waste in order to ensure compliance with legislation.

1.12.4. Hazardous Waste

The share of hazardous waste of all waste is small, below 1%, and its amounts have remained stable over recent years. The largest category of hazardous waste is old oil and oil waste, which is the result of maintenance works in machinery and equipment.

Similarly to the recent years, the proportion of reusable waste from ordinary waste is over 90%, with both sludge reusage and reusable waste delivered to partners taken into account.

1.12.5. Sludge Reusage

The main part of recycled waste was wastewater sludge. Sludge mixed with peat, i.e. the sludge mixture, can be used for landscaping and horticulture. Sludge mixture is prepared on 14 ha of composting fields constructed on the territory of the wastewater treatment plant, a part of the sludge is also transported to the Company's field in Liikva.

The Wastewater Laboratory monitors the sludge mixture quality on a regular basis. The results of analyses confirmed the compliance of the sludge mixture with regulatory requirements in force. 31,942 tons of sludge mixture was sold to customers in 2009, which is more than twice as much as in 2008.

1.12.6. Waste Permits

PERMIT	VALID UNTIL	DESCRIPTION OF WASTE PERMIT
Waste Permit no L.JÄ.HA-31326 L.JÄ/317241	08.09.2009 09.09.2014	Issued for recycling stabilised waste in Paljassaare as regards part of stabilised waste, domestic wastewater sludge and biodegradable waste.
Waste Permit no L.JÄ.HA-34941 L.JÄ/317829	30.12.2009 30.12.2014	Issued for recycling stabilised waste and for transporting waste to Liikva as well as for recycling biodegradable waste.

The conditions of waste permits related to sludge recycling were met in 2009.

COMPLIANCE WITH PALJASSAARE WASTE PERMIT L.JÄ.HA-31326, in tons

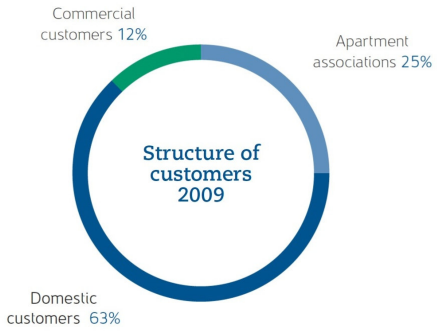
TYPE OF WASTE	Permitted	Actual				
		2005	2006	2007	2008	2009
Domestic wastewater treatment sludge	300,000 450,000	36,404	35,434	33,834	35,691	31,087
Stabilised waste	40,000 45,000	24,547	25,935	24,429	26,270	16,784
Biodegradable waste	10,000	0	0	0	0	0

COMPLIANCE WITH LIIKVA WASTE PERMIT L.JÄ.HA-34941, in tons

TYPE OF WASTE	Permitted	Actual				
		2005	2006	2007	2008	2009
Stabilised waste	15,000	8857	9499	9405	9421	14,303
Biodegradable waste	3000	0	0	0	0	0

1.13 Customer Satisfaction

In 2009, AS Tallinna Vesi provided water supply and sewerage services to more than 21,000 customers and 430,000 end users in Tallinn and its surrounding areas. The strategic objective of the Company is to achieve a high level of customer services and to provide the best customer service of any utility company in the Baltic States.



1.13.1. Annual Customer Satisfaction Survey

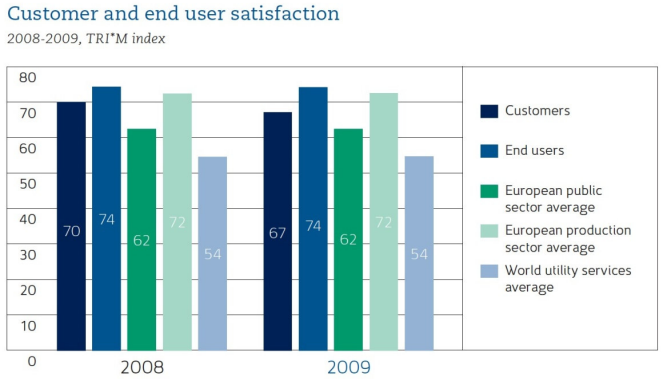
The Company undertook significant efforts in 2009 to improve the quality of its drinking water and service reliability. Customer satisfaction survey results indicate that these improvements were recognized by the customers and were met with a positive reaction. Since the customers have indicated that there are still some gaps between actual interaction with the customers and their expectations, then the Company will be focussing on improving its customer service strategy in 2010.

Independent market research company TNS Emor carried out a customer satisfaction survey for AS Tallinna Vesi, conducting phone interviews with 900 customers and end users regarding their satisfaction with the customer service of the Company in 2009. Satisfaction was measured on the basis of the TRI*M method developed by the research company to characterise 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 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 Company scored 67 points as regards customers and 74 points as regards end users in the final TRI*M index of the customer satisfaction survey on a scale of 100. Customer satisfaction has decreased in both private and business customer segments in comparison to 2008. The satisfaction of end users has remained stable in the past three years.

Compared to other utility companies in the world, the customer relationships of AS Tallinna Vesi can be considered to be good and the score of the company in terms of satisfaction of customers and end users is within the upper third among similar companies.



The strength of customer relationships and customer satisfaction are first and foremost influenced by the quality of services, primarily the quality of drinking water, the condition of infrastructure, the price of the service, and reputation of the Company, as well as the handling of problems and customer communications.

Both private and business customers stated that the main strengths of the Company are ability to ensure uninterrupted water supply, small number of emergencies and interruptions, and accuracy and clarity of invoices. Additional strengths of the Company, according to business customers, include e-mail communications and timely submission of invoices. Private customers also emphasised fast, accurate and adequate response to emergencies and the possibility to submit meter readings through the readings interface or self-service.

Both private and business customers believe that the quality, taste, odour and clarity of drinking water require continued attention. While private customers believe that fast, accurate and adequate response to emergencies is one of the strengths of the Company, business customers would like to see further improvement in this area. Private customers stated that the areas that needed improvement include ensuring a steady water pressure, actions to reduce leakages, contribution to environmental efforts and ensuring cleanness of the effluent discharged into the Baltic Sea.

The main development priority for the Company is to ensure that the service price-to-quality ratio is adequate, i.e., to increase customer awareness of the investments to continuous improvement of water quality and to ensure compliance with the European Union standards.

Customer satisfaction with different aspects of services

2008-2009, on a scale of 5

	2009 businesses	2008 businesses	2009 private customers	2008 private customers
Taste	3.7	3.4	3.7	3.7
Odour	3.9	3.5	3.9	3.9
Clarity	3.8	3.6	3.9	3.9
Consistent water pressure	4.0	3.7	3.9	3.7
Adequate service price-to-quality ratio	2.9	3.3	3.0	3.3
Submission of meter readings through web-based self-service	3.9	4.1	4.1	4.3
Timeliness of invoices	4.2	4.0	4.3	4.2
Accuracy and clarity of invoices	4.2	4.0	4.2	4.2

Compared to 2008, customer satisfaction with different aspects of the service has increased for the most part in 2009, but the pricing image of the services needs further improvement according to customers and end users. In 2009 the number of registered complaints was 280, which is approximately 25% higher than in 2008, when the Company received 205 complaints. This was mainly caused by the fact that the Company specified the procedure of registering customer complaints, for this reason the Company began to register a certain service quality related information requests as complaints.

1.14. Sustainability and Quality

It is a requirement of the Services Agreement that ASTV has full ISO accreditation. At this point in time the company holds the following certifications:

1. ISO 9001 for our quality management systems;
2. ISO 14001 for our environmental management systems;
3. ISO 17025 for the quality of our laboratories;
4. OHSAS 18001 for our health and safety management systems;
5. EU Eco Management and Audit Scheme (EMAS) accreditation. This is a management tool for companies and other organisations to evaluate, report and improve their environmental performance.

The company has made significant investment in its people, processes and systems in order to receive and maintain these accreditations. This is a clear commitment from the company to ensuring it can sustainably deliver the highest standards for water, wastewater and environmental management. Furthermore, ASTV's laboratories are recognised as some of the finest in Estonia.

2. TARIFFS & REVIEW OF CONTRACT PERFORMANCE 2001 - 2010

2.1. Tariffs 2001 to 2010

The Services Agreement provides that the Company is entitled to charge its customers for its water and sewerage services, and sets out the basis for the determination of applicable tariffs and their adjustment in certain specified circumstances. Tariffs are applicable for a calendar year and are generally adjusted annually. Separate tariffs are payable by the Company's customers for each of its water supply and sewerage services. The Company's commercial customers are charged higher tariffs for the Company's water and sewerage services than are payable by its domestic customers.

The following table sets out details of the Company's tariffs applicable to its domestic and commercial customers located in the Services Area for each of the years ended from 2001 to 2010:

Tariffs (EEK per m3, including VAT)	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**
Domestic tariff										
Water	8,30	8,85	8,85	10,08	11,67	12,79	14,17	15,84 (1)	18,17	18,00 (2)
Sewerage	6,70	7,15	7,15	8,15	9,44	10,35	11,47	12,81	14,70	14,57
Total	15,00	16,00	16,00	18,23	21,11	23,14	25,64	28,65	32,87	32,57
Commercial tariff										
Water	20,10	21,48	21,48	24,44	28,28	31,00	34,35	38,37	44,02	43,62
Sewerage (3)	14,90	15,93	15,93	18,12	20,98	23,00	25,48	28,46	32,65	32,36
Total	35,00	37,41	37,41	42,56	49,26	54,00	59,83	66,83	76,67	75,98

Note:
(1) Development component of 10,62 paid by the City not included in the tariff shown above.
(2) Development component of 10,50 paid by the City not included in the tariff shown above. This relates to a separate commercial agreement with the City of Tallinn for payment for the network extension programme. It has no relationship to the tariff or tariff formula and is only used a means of calculating a payment programme for the City of Tallinn.
(3) Commercial tariffs for sewerage reflect the common minimum applicable rate, rate SG2. Other commercial tariff rates apply for sewerage which are dependent on levels of pollution in the wastewater.

In order to calculate the water tariff the parties to the Services Agreement decided to start to use from 2001 the price formula, which took into account the water tariff formation mechanism set out in § 14 (3) of the PWSSA. Hence, the price formation formula was already agreed at the privatisation of ASTV. At the privatisation of ASTV the City and the privatising party International Water UU (Tallinn) B.V. concluded several contracts (in addition to the Services Agreement also among others the Shareholders' Agreement and Share Sale Agreement). The formula itself is included in the Services Agreement. ASTV's business plan that is annexed to the Shareholders' Agreement and the Services Agreement Schedule E Part I set out ASTV's allowed costs, allowed extent of justified profitability and the formula for calculating the Service tariff.

The tariff adjustment mechanism that was agreed for ASTV as part of the project agreements is as follows:

Tariff of the previous year
+ CPI
+ agreed 'K' factor
+ change of law
= tariff for forthcoming year

- CPI is the annual movement in CPI as at 30 June each year

- ‘K’ factor reflects the change in necessary expenses to be made by the company to achieve the levels of service, and justified profitability, but does not include the changes in costs that are included in the change in CPI.

- Change of law is dealt with as a separate component – applicable when ops costs change (increase or decrease) more than 5% in 1 year or over 7.5% in two consecutive years. This component enables the Company to receive the compensations via tariff to cover different increases in state regulated cost items, but also protects the citizens when the state regulated cost items should bring along a tariff reduction.

2.2. Review of Contract Performance 2001 to 2010

We are committed to ensuring that only internationally acceptable principles are used when evaluating the Contract performance as we believe this will best serve the long term interests of our customers and the environment. One of these principles is that a regulator would conduct a thorough review of the company’s performance in the previous regulatory period before finalising the forthcoming price determination. In the case of ASTV we have deemed this period to be the period between privatisation in 2001 and the end of 2010. To ensure this review is conducted independently we commissioned Oxera to make a complete review of our contract since privatisation using Ofwat principles. (see appendix 4)

From this analysis using Ofwat principles, it can clearly be seen that the returns made by the company are well below those that would have been allowed under the regulatory regime for privatised water utilities elsewhere in the world. In all years since privatisation the actual rate of return is well below that. This report is appended to this business plan application and will be made available for public analysis.

We would expect the Competition Authority to produce something similar regarding the Company’s performance in the previous regulatory period, and that this will be made publicly available for challenge and discussion before any regulatory price determination is finalised. Having such a public discussion will ensure the key stakeholder group, the citizens of Tallinn, fully understand the mechanisms and assumptions used in setting the tariffs. This will ensure that they are protected from monopolies or the state abusing their positions for unreasonable gain.

Additionally all water companies will find it much easier to raise external funds (equity and debt) if the regulatory principles and assumptions are transparent and clear.

3. TARIFF APPLICATION 2011 TO 2015

3.1. Services Agreement

The foundations for any tariff application are the quality standards that must be achieved in order to charge those tariffs. Any basic regulatory building blocks model, including that used by ASTV uses these fundamental principles. The chart below gives a simple illustration of how quality standards feed into an allowed revenue calculation.

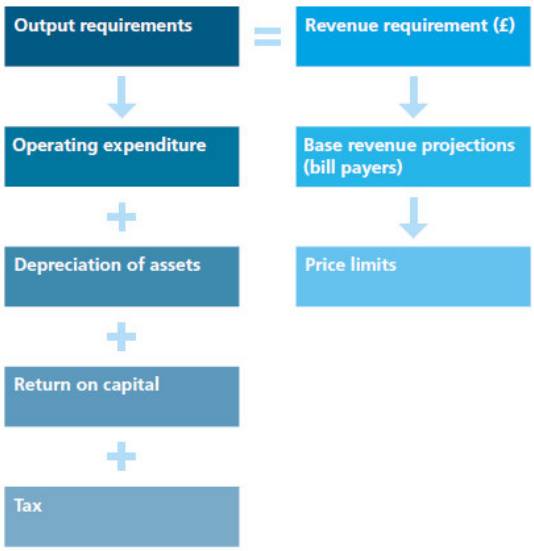


Figure 22 – Approach to setting price limits

The output requirements mentioned in the above chart are the legal obligations that the company must comply with as supplemented by the Services Agreement that ASTV has with the City of Tallinn. The Services Agreement contains all the service standards that ASTV must comply with, and details the penalties that the company must pay should it fail to meet those standards. As the law does not cover all aspects of the service that the City of Tallinn believed the customers require the Services Agreement contains levels of service that are far more onerous than that required by the law or are not covered by the law. To ensure company performance can be audited and monitored the City of Tallinn has established the MMU. This organisation performs an independent monitoring service that checks and validates all aspects of ASTV's performance and its compliance with the contractual Levels of Service. To support this application a copy of the Services Agreement and the Levels of Service Report for 2009 is appended to this report (see appendices 1 and 3).

Finally, the Services Agreement seeks to ensure that ASTV is able to sustainably deliver the water and wastewater service. Therefore it has been a requirement (services level A1) that the company certifies its quality management system (ISO 9001) and environmental management system (ISO 14001). AS Tallinna Vesi was certified with the ISO 9001 certificate in 2002 and with the ISO 14001 certificate in 2003. In addition to this, in 2007 the Company has voluntarily certified its occupational health and safety system with OHSAS 18001 standard requirements and in 2005 the Company's environmental management system was certified with the EMAS certificate (compliance with the EU (EMAS) Directive 761/2001 - *voluntary environmental management and auditing system put in place by the European Union)*. Retaining the ISO and EMAS certificates requires the Company to constantly better its systems, which requires investments. All certificates are presently valid and the next audit has been scheduled for April 2011.

This tariff application is made on the basis of the Services Agreement supplemented by any improvements that the company has delivered over the period since privatisation. A selection of the key performance indicators taken from the Services Agreement and custom and practice are detailed in the table below. This tariff application is based upon the continued consistent achievement of these standards throughout the five year period with no detriment to our customers.

Section 1 of this report contains a much more detailed overview of the company. This section gives more information on the benefits ASTV has delivered in the past ten years, the legal and environmental areas ASTV operates within, and how ASTV carries out its operations.

Looking forward into 2011 and beyond the following table details the specific objectives that ASTV is targeting to achieve. Some of these standards are those required to comply with the law, some are taken from the Services Agreement, which targets ASTV with achieving more than the law or areas that are not covered by the law, whilst some are the company's own internal standards, which deliver more than the law or the Services Agreement and are delivered at the company's own expense.

Criteria	Performance in 2009	2010 Estimate	2011 Forecasted Target
Percentage of Water Quality samples leaving the Treatment Plant in compliance with standards	100%	100%	100%
Percentage of water samples taken at customer's premises in compliance with standards	99.31%	99.31%	99.31%
Average time in hours for unplanned interruptions	6	5	5
Number of unplanned interruptions	900	<700	<600
Level of leakage from the distribution network	<18%	<21%	<19%
Water Pressure enquiries	1568	<1500	<1400
Number of blockages recorded on the wastewater network	1089	<1200	<1000
WWTP overall compliance	100%	100%	100%
Number of quarters complying with the 10mg/l total nitrogen discharge standard for tax purposes	2	2	2
Removal rate of total nitrogen load to the wastewater treatment plant	>70%	>70%	>70%
Rehabilitation of the water distribution system	>5km	>5km	>5km
Rehabilitation of wastewater distribution system	>5km	>5km	>5km
Percentage of customer enquiries responded to within 10 days	100%	100%	100%

3.2. Methodology for Economic Regulation and Tariff Setting

This financial and economic tariff application is made by using many of the factors contained in the building block approach that is used by Ofwat, the regulator for water and sewerage services in England and Wales. We feel this methodology is the most appropriate as it is the oldest regulatory model for the water sector in the world which has been continually refined and improved over the last 20 years, and is recognised as the world leading water regulatory regime. Moreover this regime which regulates privatised water companies, similar to ASTV, is clearly recognised as by the Competition Authority (CA) as exemplifying best practice as it has been continually referenced by the CA in their comments and analysis of ASTV.

The building block approach uses a series of "blocks" to build up the revenues required by the company to sustainably operate its assets and meet the required output standards. In order to ensure the correct application of the Ofwat building blocks model ASTV has commissioned Oxera, who are internationally renowned as experts in the field of economic regulation, to independently verify and analyse the application in order to ensure that our application is fully in line with international best practice for privatised water utilities. (see appendix 4).

The building block approach used here is very similar to that recommended by the CA in their draft methodology. The building blocks used in our application to calculate the required revenues are the same as those used in the chart above. Allowed revenue being made up of:

1. Return on invested capital (ROIC)
2. Operating expenditure
3. Tax
4. Capital maintenance (depreciation)

In our model we have ensured that the amounts included for operating expenditure and capital maintenance are consistent with and sufficient to cover the following two aspects of the PWSSA and the contractual requirements of our Services Agreement with the City of Tallinn. These being;

1. *Comply with quality and safety requirements;*
2. *Fulfilling the conditions of environmental protection*

The value of the ROIC is calculated in accordance with Ofwat principles. It is made up of the following two fundamental components, the Regulatory Capital Value (RCV) and the Cost of Capital:

1. RCV – this is calculated as the enterprise value of the company at privatisation in 2001 adjusted for capital expenditure made since 2001. Finally the adjusted RCV is rolled forward each year and has been indexed by Estonian inflation.
2. Cost of Capital – has been calculated using the Ofwat methodology adjusted for factors that are specific to Estonia (country risk, CA's target gearing ratio). It should be noted the cost of capital in this application is a "real" cost of capital (net of inflation). A "real" cost of capital is used to avoid double counting of inflation as the RCV has already been adjusted for inflation.

Within our calculations, in accordance with the Ofwat methodology we have applied two key principles.

Firstly, that the opening value of the RCV is the **enterprise value on privatisation**. This ensures that the investor is able to make a return on all of the capital invested and ensures that one of the key bid criteria from the original privatisation is respected – i.e. 40% of the bid award criteria was judged on the value offered for the equity. We would like to clearly point out that the investor was encouraged by the bid award criteria to offer and pay more than the nominal value of the shares with a clear understanding that they would be able to make a rate of return equivalent to the level of risk being taken on this capital. Much of this premium was paid directly to the City of Tallinn and is not recorded on the balance sheet of ASTV.

Secondly, this tariff application uses the principle of financial capital maintenance. This ensures that the regulatory regime will adequately protect the value of invested capital from the effects of inflation. This is completely consistent with the Ofwat methodology.

The calculation of the RCV for this tariff application is made up as follows. From the table below the average opening value of invested capital based on the Ofwat methodology is worth 5.5bn EEK. As a result of inflating the asset base to protect the value of invested capital from inflation and capital investments made by the company this value rises to 6.2 bn EEK by the end of the tariff application

period. A more detailed analysis of the build up of this figure is contained in Appendix 5 to this application.

	2011	2012	2013	2014	2015
Gross value (incl reported revaluations)					
Opening balance	5 412 163	5 633 666	5 782 345	5 944 112	6 113 802
(+) CAPEX					
Enhancement infrastructure	1 750	1 754	1 760	1 765	1 770
Maintenance non-infrastructure	34 656	36 004	37 407	38 907	40 471
Enhancement non-infrastructure	82 229	1 754	1 760	1 765	1 770
(+) Indexation (asset specific)					
Asset specific (annual)	135 304	146 475	156 123	160 491	165 073
HY of CAPEX	1 474	510	549	569	590
(-) Depreciation for the year	-78 916	-84 577	-84 412	-84 336	-84 354
(+) Difference between IRE and IRC	45 007	46 758	48 581	50 529	52 560
Closing balance	**5 633 666**	**5 782 345**	**5 944 112**	**6 113 802**	**6 291 682**
Average RCV	5 522 914	5 708 005	5 863 229	6 028 957	6 202 742

The "real" estimated cost of capital for this five year tariff application is 6.46%. This has been calculated as follows:

COST OF CAPITAL ESTIMATE			
Price control period	**PR99**	**PR04**	**PR09**
Years	**99-04**	**04-09**	**09-14**
Ofwat			
Risk-free rate (real)	2,75%	2,75%	2,00%
Debt premium	1,75%	1,10%	1,60%
Equity beta	1,0	1,0	0,9
ERP	3,50%	4,50%	5,40%
Asset beta	0,5	0,5	0,4
Gearing	47,5%	55,0%	57,5%
Tax	30%	30%	28%
Cost of debt (pre-tax)	4,50%	3,85%	3,60%
Cost of equity (post-tax)	6,08%	7,25%	7,08%
Vanilla WACC	5,33%	5,38%	5,08%
Tallinn Water (implied by Ofwat)			
Gearing	50%	50%	50%
Country risk premium	2,50%	2,00%	1,50%
Equity beta	1,0	0,9	0,8
Cost of debt (pre-tax)	7,00%	5,85%	5,10%
Cost of equity (post-tax)	8,74%	8,80%	7,82%
Vanilla WACC	**7,87%**	**7,33%**	**6,46%**

All of the above factors included in the cost of capital calculation have been independently verified. The Ofwat calculations, plus a discussion and challenge of the final determination for the cost of capital can be found on page 128 of the document contained in the attached link.
http://www.ofwat.gov.uk/pricereview/pr09phase3/det_pr09_finalfull.pdf

We have adjusted the Ofwat figures to take account of the differences between UK and Estonian country risk. Our calculations have been taken by using the difference between Estonian and UK credit default swaps over the last twelve months (as priced by investors) as these instruments take a longer term view of the differences which is more appropriate considering our contract and industry. This calculation results in an Estonian country risk premium of 1.5%.

ASTV has followed the 50/50 gearing ratio specified by the CA even though the company's current gearing ratio on its regulatory capital value is only 28%. It should be noted that in 2007 ASTV raised 20m Euro of additional debt and used its own internal cash flows to finance the sewerage extension programme on behalf of the City of Tallinn (see Schedule B and Schedules II and III of the 2009 Amendment of the Services Agreement for more detail on this topic).

ASTV has applied the above cost of capital to the whole of the tariff application period, 2011 to 2015, as by doing so this provides greater certainty to the company, investors, lenders. This enables all these stakeholders to better understand ASTV's performance will reduce capital programme costs and reduce financing costs. Furthermore, a systematic and structured medium term approach reduces the likelihood of short term tariff setting for political gain.

However, the company does recognise that as Estonia will join the Euro zone from 1 January 2011 it is probable that the Estonian country risk factor will reduce still further.

3.3. Our growth and costs assumptions

3.3.1. Macroeconomic and Environment

The operational performance and financing requirements of ASTV are impacted by the macroeconomic situation within and outside of Estonia and force majeure factors such as the weather.

In order to build these factors into our building blocks model in a systematic way we have used the following financial and environmental assumptions.

3.3.2. Key Indicators for the Business Plan

Indicators relate to the Services Area in the City of Tallinn only

	Note	2010	2011	2012	2013	2014	2015
Population Served	1	411 902	411 902	411 902	411 902	411 902	411 902
Customer connections - Domestic		19 709	19 709	19 709	19 709	19 709	19 709
Customer connections - Commercial		2 899	2 899	2 899	2 899	2 899	2 899
Surface Water produced (000 m3)	2	21 279	21 279	21 492	21 707	21 924	22 143
Ground Water produced (000 m3)	2	2 716	2 716	2 743	2 771	2 798	2 826
Volumes sold (w&ww) - Domestic (000 m3)	3	27 550	27 550	27 825	28 103	28 385	28 668
Volumes sold (w&ww) - Commercial (000 m3)	3	8 505	8 505	8 632	8 762	8 893	8 982
Wastewater volumes treated (000 m3)	4	45 452	45 452	45 452	45 452	45 452	45 452

Notes

1. *The precise number for the current population served is not known but no population growth is assumed. http://www.tallinn.ee/Tallinna-elanike-arv*
2. *Consumption increase balanced by leakages decrease*
3. *Total water and wastewater volumes*
4. *Wastewater volumes treated are driven by the amount of rainfall. ASTV operates a combined network in much of the City*

Wherever possible we have taken our key cost and revenue assumptions from independent data sources or from our own financial accounts, environmental and Levels of Service reports. All of which are independently audited.

The table below details the revenue and cost assumptions contained in this tariff application and business plan.

The second key component of any model of economic regulation is the inclusion of all costs necessary to ensure that the required levels of service are efficiently achieved. Within our calculations we have also ensured we comply with the cost requirements of the PWSSA. These being:

1. *Comply with quality and safety requirements;*
2. *Fulfilling the conditions of environmental protection*

In the absence of any principled guidance on key growth and cost indicators the company has developed its own set of assumptions based upon known experience and currently available information.

The table below details the key assumptions used in our calculations. It contains the estimated annual percentage change in our main revenue and cost categories. All operating costs across the period are assumed to increase by CPI other than those detailed in the table below. Given the lack of guidance and structured efficiency models being applied within the local regulatory environment we have included productive efficiency targets according to the CA's recommendations for the Energy sector. Moreover, the suggested regulatory period is only 12 months, such a short regulatory period gives a greater focus on cost justification rather than productive efficiency.

KEY COST AND REVENUE ASSUMPTIONS

	Note	**2011**	**2012**	**2013**	**2014**	**2015**
Domestic Volumes	1	0,0%	1,0%	1,0%	1,0%	1,0%
Commercial Volumes	1	0,0%	1,5%	1,5%	1,5%	1,0%
Price	2	3,5%	2,6%	2,7%	2,7%	2,7%
CPI	3	2,5%	2,6%	2,7%	2,7%	2,7%
Tax on Water	4	10,0%	10,0%	10,0%	10,0%	10,0%
Chemicals	5	3,8%	3,9%	4,1%	4,1%	4,1%
Electricity	6	15,0%	3,9%	4,1%	4,1%	4,1%
Pollution Tax	7	15,0%	15,0%	15,0%	15,0%	15,0%
Heating and gas	8	5,0%	5,2%	5,4%	5,4%	5,4%
Maintenance	9	5,0%	5,2%	5,4%	5,4%	5,4%
Efficiency	10	-1,5%	-1,5%	-1,5%	-1,5%	-1,5%

Notes

1 Volumes - based upon average change in consumption in Tallinn in the last five years (source ASTV financial and management accounts)

2 Price - contractually agreed increase for 2011, Ministry of Finance estimated for period to 2014. Storm water and fire hydrants revenues have been increased as per cost increase

3 CPI- Ministry of Finance estimates for period to 2014

4 Tax on water - official Ministry of Environment statistics

5 Chemicals - 1,5 x CPI

6 Electricity - 2010 actual market price used for 2011 thereafter 1.5x CPI.

7 Pollution taxes - official ministry of environment statistics

8 Heating and Gas - 2 x CPI

9 Maintenance - 2011 calculated on same volume of work increased by known ashpalt price changes. Thereafter 2 x CPI.

10 Efficiency coeficient - (-1.5%) applicable on fixed costs as per CA recommendation for the Energy sector

As a result of the above assumptions the average change of ASTV's variable and fixed costs is 12% and -2% respectively in 2011.

The operational and financial performance of ASTV is also impacted by the weather and other environmental factors which are clearly outside of ASTV's control. This is especially the case with Pollution taxes, which, in spite of always meeting the legal standard for nitrogen removal, ASTV can only pass the quarterly pollution tax measure if the weather is favourable. It is for this reason that ASTV has used 2010 weather, flow and sales volume estimates as the basis for the pollution tax calculation.

3.4. Taxes

We have included an allowance for taxes paid within the allowed revenues calculation. Investors will always require earnings to be calculated post and not pre tax and therefore it is entirely appropriate to include this within the calculation and model.

Within our future calculations for allowed revenue we have not included the actual tax charge that we expect to pay but rather have included a tax charge based upon the notional gearing of the company. This is consistent with regulatory precedents, in particular Ofwat's methodology on which this application is based. This reduces the allowed tax charge in each year's allowed revenue calculation. (see appendix 4 Oxera note on this tariff application for further information).

3.5. Depreciation

When using the Ofwat methodology the depreciation charge included within the tariff is a current cost depreciation (CCD) charge. By including a CCD charge the regulator is ensuring that current customers are not being subsidised by future customers. In the water industry technological advances very seldom bring significant reductions in the price of fixed assets. Furthermore the assets used to provide the service are long life assets often acquired decades in the past. As a consequence the historic cost depreciation charge will not be sufficient to cover the replacement cost of those assets. Including a CCD recovery mechanism through the tariff ensures that current customers are paying the correct price for the service they are using today.

Our calculation model has been verified by Oxera using both current and historic cost depreciation calculations. The Oxera report and model appended to this plan includes CCD charge based upon the calculation methodology used by Ofwat. Additionally ASTV has produced an amended depreciation charge using historic cost depreciation.

We recognise that to include CCD in our current tariff mechanism would mean a step change increase in the tariff. In addition, to accurately include such a charge would require a thorough and detailed analysis of ASTV's assets and their replacement costs. However it should be noted that a move to CCD charging within the tariff mechanism would lead tariff levels that are more in accordance with the cost of the service being received. However, we reaffirm, to ensure that future tariffs reflect the cost of providing the service we recommend the CA to implement transitionary measures to move towards a CCD depreciation charge within the allowed revenues in the near future.

Our final tariff calculation includes the historic cost depreciation charge taken from the our financial statements which are audited by PricewaterhouseCoopers and are in accordance with International Financial Reporting Standards (IFRS).

3.6. Our Investments and the Benefits They Will Bring

Over the five years of this business plan and tariff application ASTV intends to invest 0.5bn EEK into its fixed assets in order to sustainably improve the quality of products and services received by the citizens of Tallinn and the environment in and around Tallinn.

The focus of our investment programme for this business plan programme is to improve the quality of the treatment process at Paljassaare WWTP. The increased wealth of the citizens of Tallinn has brought a change in the profile of the sewerage that comes to our WWTP. Furthermore, climate change has brought more unpredictable weather patterns – record snowfall, drier summers but with much heavier and sudden storms with huge quantities of rain falling in a very short period of time. Therefore in order to consistently and sustainably treat our wastewater to the highest standards and maintain our contribution to a clean Baltic Sea the company needs to make further investments at the WWTP.

The second focus of our investment programme is at both the water and wastewater treatment plant where we are looking to invest in new "green" technologies to create a more sustainable environment. By investing in a heat pump at the WTP and a CHP system at the WWTP the company will be able to make much better use of the energy bi-product from the plants in order to generate heat and or electricity to be used in the production and treatment processes.

The third focus of our investment programme is in the quality of our networks. Within the current contract it is a requirement that the company enhances the network by rehabilitating 5km of water and wastewater network each year. These enhancements make a significant contribution to the consistently high standards of the performance of both networks as can be witnessed in the statistics shown in the table in paragraph 3.1 of this document.

3.7. Enhancement Projects Requiring Capital Investment

3.7.1. Water Treatment

Installation of a heat pump
The source of water supplying the city is taken from Ülemiste lake. This lake is shallow and the ambient temperature of the water fluctuates with different seasons. Higher water temperatures during summer months have detrimental effects ranging from failure of the ozonation treatment processes, poor water quality in the network and increased leakage.
The installation of a heat pump on the inlet to the treatment plant will enable the company to control the temperature at the inlet to the plant hence improving treatment and reducing quality complaints.

The purchase of land necessary to ensure the supply of services
During the installation, maintenance and repair of water and wastewater pipes, valves, hydrants and pumping stations it is necessary to apply easements and servitude along the route of the pipes and around key installations. In order to ensure free and easy access particularly to strategic pipes, the purchase of land associate with the asset is required. These purchases will enhance the assets through proper management and maintenance of below ground installations

3.7.2. Wastewater Treatment

Replacement of Mechanical Screens
The main pumping station and the wastewater treatment plant both contain mechanical screening equipment which removes large particulate matter. However the diameter of the screens is 12 mm and allows a significant amount of material to pass into the treatment process increasing maintenance and reducing treatment efficiency.

This project will replace the 12 mm screens with 6 mm screens allowing the plant to remove more particulate material, reducing interruptions within the plant and ensuring sludge treatment and disposal will comply with environmental standards.

Installation of liquid sludge storage tanks
The treatment plant has no storage capacity for liquid sludge. As a result of this there is a real risk that the treatment plant will fail quality standards, particularly if the sludge treatment plant is not working. Installation of storage tanks will enhance the treatment of sludge and improve the biological treatment processes by controlling the amount of sludge in the primary sedimentation tanks. Sludge storage will also enable the plant to reduce the volume of liquid sludge to be treated by enabling some dewatering to occur.

Installation of a heat pump
The installation of a heat pump on the outlet from the wastewater treatment plant will enable the plant to supply heat energy necessary for the anaerobic digestion of sludge a vital stage in the removal of pathogenic organisms prior to the disposal of sludge. This type of process requires the temperature of the sludge to be raised to 37 degrees centigrade.
A heat pump will provide a source of available heat, supporting the existing boilers and enhancing the operation of the plant. As the current boilers use the methane produced as a result of the digestion process, then any failure in the treatment process, results in the company using natural gas to heat up the digesters.
By installing a heat pump we can extract heat energy and reduce the requirement for natural gas and enhance the plant by making it more self sufficient

Installation of a combined heat and power engine (CHP)
The installation of a CHP engine will enable the plant to better utilize the methane gas produced as part of the sludge treatment process. Currently the methane gas is used to heat up the digesters and provide fuel for a gas engine providing compressed air necessary for the secondary biological treatment of wastewater.
A CHP engine will enhance the plant by providing electrical power to essential equipment and heat to the digestion plant. The provision of an alternative electrical supply will reduce the risk of treatment failures and flooding events as a result of a power outage.

3.7.3. General

Enhancement of information management systems
For the company to improve its responsiveness and to deliver levels of service it is necessary to enhance Information Technology systems in order to collect, analyse and report data. Such projects include, hand held devices for recording operational parameters e.g. pressure and flow. Web based access to SCADA system allowing immediate control. Improved communication links enabling direct customer access with suitable hardware to ensure security of data.

Radionuclides in ground water
Not included within our capital programme in this tariff application are the investments that will need to be made should the Ministry of Social Affairs and the Tallinn Health Protection Inspectorate decide to change the law regarding ground water quality, and determine that some of our current ground water sites can no longer be used. Should this be the case the company will need to make investments to connect the impacted ground water areas to surface water or to establish new local treatment facilities on these sites.

3.8. Tariffs

This business plan assumes that overall tariffs across the plan period will rise by an average of 2.8% per annum, which is in line with inflation for the period. This is in spite of the fact that water

extraction and pollution tax rates are forecast to increase by far more than inflation over the next five years and the company will continue to invest to enhance the quality of the assets across the business plan period.

Over the period 2011 to 2015 AS Tallinna Vesi will invest 0.55bn EEK in the period and will incur a further 1,5bn EEK in operating costs over the period.

Looking at operating costs in more detail, during the five year period we estimate that uncontrollable variable costs will increase by over 9% per annum from 101m EEK in 2010 to 157m EEK in 2015, or by 55% in total compared to 2010 final estimates. These cost increases are mainly driven by factors completely outside of the company's control, such as increased environmental tax rates and the significant increase in energy prices that resulted from the opening of the market in April 2010. Regarding fixed costs, during the period 2010 to 2015 we estimate that we will be able to keep fixed costs below the rate of inflation and have included a 2% weighted average increase over the five year period. This will mean total fixed costs increasing from a 2010 estimate of 166m EEK per annum to 183m EEK by the end of 2015.

Overall, in spite of total operating costs increasing at a weighted average cost of 5% per annum AS Tallinna Vesi is applying for a weighted average tariff increase of 2.8% per annum which is in accordance with the privatisation contract and in accordance with CPI. AS Tallinna Vesi is assuming all cost risk above the level of inflation.

3.9. Financing the Plan

Our financing strategy is based upon the balanced approach we have taken in previous years. Currently the company has 95m Euro of long term debt on the balance sheet. Of this 75m Euro has to be re-paid or re-financed over the next five years. Within this tariff application the company plans to re-finance and not repay this debt. However, given the current political situation coupled with a 12 month regulatory period this may be very difficult to achieve. A 12 month regulatory period does not give any visibility of revenues and as a consequence of this and the political risk banks may not be willing to lend to ASTV or will only do so by pricing in a much higher risk margin.

In the absence of high quality locally available information we have used the values produced by Ofwat as the basis to calculate a cost of debt for the period. Although the Ofwat cost of debt is higher than the rate we currently pay it takes into account that the company will have to refinance 75m Euro of long term debt by the end of 2013 – the company will not be able to borrow as cheaply as in past periods – and the fact that interest rates are expected to rise significantly in the immediate future.

As a result of these factors we calculate an average cost of debt of 5.1% in this tariff application period.

3.10. Tariff Application

This tariff application assumes that other than the legislative requirement to reduce the difference between domestic and commercial tariffs by 1/15 each year – the methodology for doing this has not yet been defined – the current tariff structure will remain in place. In discussions with the Competition Authority (CA) and within their draft methodology the CA have stated that companies should calculate an overall revenue requirement which should then be allocated across their current tariff structure based upon sales volume estimates. Whilst this does not guarantee that all tariffs are cost based it does ensure that tariff changes are consistent. In this case ASTV has made its initial application based upon its current tariff structure:

- Domestic water – volume charge
- Domestic wastewater – volume charge

- Commercial water – volume charge
- Commercial wastewater – volume charge

This application does not include tariffs for stormwater and firewater as the provision and payment for both these services is covered through a separate contract with the City of Tallinn. Revenues from these services were deducted from the overall revenues before any tariff calculations were made.

Looking into the future and in order to improve the cost allocation principles, especially for capital costs, the CA may wish to consider implementing a fixed charge element as this is often believed to be a more effective mechanism for recovering capital costs through the tariff.

To make this tariff application we have used a building blocks model based on the Ofwat methodology. This methodology has been verified by Oxera as in accordance with Ofwat principles, other than the use of accounting book value for depreciation as Ofwat uses Current Cost Depreciation within its calculations. The following table details how the allowed revenue has been built up using this methodology.

Key assumptions used to produce this analysis:

1. Opening Invested Capital is equal to the privatisation value of the company indexed each year by Estonian CPI
2. Invested capital is increased annually by the capital investments made by the company after deducting the accounting depreciation charge
3. Real cost of capital of 6.46% – uses the figures from the Ofwat PR09 price determination adjusted for Estonian country specific factors
4. Variable costs increased in accordance with ASTV estimates, see the in the paragraph 3.3.2 'Key cost and revenue assumptions'.
5. Fixed costs increased by ASTV estimates, offset by an efficiency factor of 1.5% per annum
6. Depreciation charge – ASTV estimates for accounting depreciation
7. Taxes – Estimated tax charge based upon the notional gearing of the company.

Building blocks check	2010	2011	2012	2013	2014	2015
ROCE		356 780	368 737	378 765	389 471	400 697
Depn		78 916	84 577	84 412	84 336	84 354
Opex		275 260	289 438	304 978	321 880	340 310
Tax		27 324	34 609	38 517	37 113	41 124
Total allowed revenue	**697 801**	**738 280**	**777 361**	**806 673**	**832 799**	**868 500**
Total change in allowed rev		**40 479**	**39 081**	**29 312**	**26 127**	**35 700**
Less revenues for SW & FW	(55 790)	(57 550)	(60 515)	(63 764)	(67 298)	(71 151)
Allowed revenue tariffs	**642 011**	**680 729**	**716 846**	**742 909**	**765 502**	**797 349**
Change in allowed rev - tariffs		**38 718**	**36 117**	**26 063**	**22 593**	**31 847**

Moving to a classical building blocks model that is uses best practice principles and is in accordance with the main regulatory principles used in the electricity and gas sector (see page 2 of this application – *guarantee of acceptable return on invested capital for investors, i.e. at least equivalent return that they would obtain on investments with the same degree of risk*) leads a revenue increase of 52.9m EEK (8.2%) from 2010 estimated revenues.

However on privatisation ASTV was given a 15 year licence to operate (extended by 5 years to 2020 in 2007) by the City of Tallinn. This 15 year licence ad to be and was approved by the national government prior to privatisation in order to ensure its success. This extended licence and the tariff mechanism used in our Services Agreement were deemed the most appropriate mechanisms to enable the company and the investor to earn an appropriate return on their capital invested.

Therefore, as the building blocks model gives a higher tariff increase than that allowed by the contract ASTV in 2011 and higher than estimated inflation in all subsequent years, ASTV has limited its tariff application to an increase of 3.5% in 2011, the amount that is legally permitted by the contract.

It should be noted that when converting the tariffs to Euros that when rounding to two decimal places some of the new tariffs can be rounded up as well as down. However in order to comply with good corporate citizenship AS Tallinna Vesi commits to rounding all tariffs down. This will limit the tariff increases to less than 3% in 2011. Furthermore, this will reduce the amount of allowed revenue by just under 3.3m EEK or 209k Euros.

What is driving the changes in tariffs in 2011? The following table details the breakdown of the cost increases and decreases in the 2011 tariff application.

in thousands of kroons

BB allowed increase in revenue	**40 479**

Change in allowed revenue

Made up of

ROIC in CPI	8 741
Change in ROIC (6,65% to 6,46%)	(9 968)
ROIC on new Capex	3 564
Increase in SW and FW	(1 760)
Variable costs	12 271
Fixed costs	(3 851)
Depn	2 398
Tax	27 324
ASTV Contract Risk	(16 248)
ASTV Euro adjsutment	(3 274)
ASTV revenue increase	**19 196**

As a consequence of all of the above ASTV is applying for an allowed revenue increase of 19.2m EEK for 2011 which would lead to the following tariffs in 2011.

Using the set of assumptions outlined in future years would give the tariff detailed below in the years 2012 to 2015, it should be noted however that tariffs in future years would be subject to a changes in input costs, however to date the CA has not published the principles it will apply in the following areas that could impact future tariffs. For example:

1. List of uncontrollable and controllable costs;
2. The principles it will use to calculate target costs for uncontrollable costs (what will be target cost for energy in 2011?);
3. The principles used for setting target costs that could be used to incentivise companies to become more efficient;
4. The principles to be used to calculate the under or over recovery of costs.

Our initial tariff application for tariffs for 2011 to 2015 is as follows:

Firstly in EEK

	2011	2012	2013	2014	2015
Tariff					
Domestic Water	15,52	15,95	16,41	16,88	17,33
Domestic Sewage	12,50	12,85	13,22	13,60	13,96
Commercial Water	38,26	39,13	40,06	41,01	42,10
Commercial Sewage	27,69	28,32	29,00	29,68	30,48

And then in Euros as will be required from 1 January 2011.

	2011	2012	2013	2014	2015
Tariff					
Domestic Water	0,99	1,02	1,05	1,08	1,11
Domestic Sewage	0,79	0,82	0,84	0,87	0,89
Commercial Water	2,44	2,50	2,56	2,62	2,69
Commercial Sewage	1,76	1,81	1,85	1,90	1,95

More detailed breakdown of this initial application can be found in appendix 5 to this report.

As mentioned above, we are aware that we have not applied for an incremented 1/15 convergence between domestic and commercial prices since the law is not clear on how this convergence should happen – whether only one tariff should be increased and the other decreased or whether both can incrementally change at the same time. Although your draft methodology version 2 does not give guidance on this, I am sure you have contemplated this issue already and are able to instruct us within a very short time of how to proceed here. We therefore expect your recommendation promptly, perhaps within a week, and can then adjust our tariff proposal and any relevant calculations accordingly and resubmit our application within a few days from receiving your relevant instruction on this matter. Alternatively, as this calculation does not impact the financial or quality of service aspects of our calculation, you may prefer to leave this recommendation until the very end of the application process.

We kindly request for you to review our proposal for the prices of water and waste water services offered in the Tallinn City area to be levied in 2011-2015 within the 30-days deadline stipulated in § 14^2 section 4 of the PWSSA. Until we are able to apply new prices, we will be applying the current price list valid as at 31.10.2010 as per § 16 sec 6 of the PWSSA. As pursuant to § 14^2 section 10 you are required to verify with the City of Tallinn, whether our application is in line with the City's development plan, then in order to secure a speedy process, we have taken the liberty to forwarding our application to the City of Tallinn already. Should you require further data or additional explanations from us or an extension in reviewing our application, please kindly let us know at your earliest convenience.

Appendices:

1. Services Agreement
2. List of legal acts
3. Levels of Services Report for 2009
4. Oxera Report
5. Financial tables
6. Saue City Council decision nr 91 of 19.03.1998.

ANNEX 5 FINANCIAL TABLES - Table 1 - ASTV P&L 2010 - 2015

P&L (Regulated business in Tallinn)	2010	2011	2012	2013	2014	2015
Households	374 151	387 246	401 187	416 031	431 424	447 387
Commercial	267 860	277 235	288 602	300 723	313 354	324 948
Stormwater recharge	52 800	54 466	57 271	60 346	63 691	67 338
Firewater recharge	2 990	3 084	3 243	3 417	3 607	3 813
TOTAL SALES	**697 801**	**722 032**	**750 304**	**780 518**	**812 075**	**843 485**
Tax on Water	(11 652)	(12 818)	(14 099)	(15 509)	(17 060)	(18 766)
Chemicals	(18 589)	(19 286)	(20 038)	(20 850)	(21 694)	(22 573)
Electricity	(37 697)	(43 351)	(45 042)	(46 866)	(48 764)	(50 739)
Compost Production	(1 844)	(1 891)	(1 940)	(1 992)	(2 046)	(2 101)
Pollution Tax	(31 385)	(36 093)	(41 507)	(47 732)	(54 892)	(63 126)
TOTAL COST OF SALES	(101 167)	(113 438)	(122 626)	(132 950)	(144 457)	(157 306)
GROSS MARGIN	**596 634**	**608 594**	**627 678**	**647 568**	**667 618**	**686 180**
Indirect Costs						
Salaries	(76 883)	(78 805)	(80 854)	(83 037)	(85 279)	(87 581)
Training	(1 646)	(1 687)	(1 731)	(1 777)	(1 825)	(1 875)
Transport	(18 504)	(18 967)	(19 460)	(19 985)	(20 525)	(21 079)
Heating & Gas	(4 829)	(5 071)	(5 334)	(5 623)	(5 926)	(6 246)
Laboratory	(900)	(923)	(947)	(972)	(998)	(1 025)
Comms/IT	(3 961)	(4 060)	(4 166)	(4 278)	(4 394)	(4 512)
Materials	(6 196)	(6 351)	(6 516)	(6 692)	(6 873)	(7 058)
Maintenance	(19 375)	(20 343)	(21 401)	(22 557)	(23 775)	(25 059)
Contracted services	(18 415)	(18 875)	(19 366)	(19 889)	(20 426)	(20 978)
Insurance	(2 114)	(2 167)	(2 223)	(2 283)	(2 345)	(2 408)
Other	(12 851)	(7 059)	(7 242)	(7 438)	(7 639)	(7 845)
Efficiency		2 485	2 427	2 502	2 580	2 661
Total Indirect Costs	(165 673)	(161 822)	(166 812)	(172 029)	(177 423)	(183 005)
EBITDA	**430 961**	**446 772**	**460 866**	**475 540**	**490 195**	**503 175**
Depreciation	(76 518)	(78 916)	(84 577)	(84 412)	(84 336)	(84 354)
EBIT	**354 443**	**367 856**	**376 289**	**391 127**	**405 859**	**418 822**

Ofwat Value of invested Capital	5 332 435	5 522 914	5 708 005	5 863 229	6 028 957	6 202 742
Ofwat Allowed rate of return	7,33%	6,46%	6,46%	6,46%	6,46%	6,46%
Ofwat Allowed Post-Tax ROCE	390 601	356 780	368 737	378 765	389 471	400 697

Building blocks calculation	2010	2011	2012	2013	2014	2015
ROCE	390 601	356 780	368 737	378 765	389 471	400 697
Depn	76 518	78 916	84 577	84 412	84 336	84 354
Opex	266 840	275 260	289 438	304 978	321 880	340 310
Tax	49 271	27 324	34 609	38 517	37 113	41 124
Total allowed revenue	783 229	738 280	777 361	806 673	832 799	866 485
Actual revenue reg business	697 801	722 032	750 304	780 518	812 075	843 485
Difference - actual to allowed	(85 428)	(16 248)	(27 057)	(26 155)	(20 724)	(23 000)

ANNEX 5 FINANCIAL TABLES - Table 2 - Key cost and revenue assumptions 2011 to 2015

	Note	2011	2012	2013	2014	2015
Domestic Volumes	1	0,0%	1,0%	1,0%	1,0%	1,0%
Commercial Volumes	1	0,0%	1,5%	1,5%	1,5%	1,0%
Price	2	3,5%	2,6%	2,7%	2,7%	2,7%
CPI	3	2,5%	2,6%	2,7%	2,7%	2,7%
Tax on Water	4	10,0%	10,0%	10,0%	10,0%	10,0%
Chemicals	5	3,8%	3,9%	4,1%	4,1%	4,1%
Electricity	6	15,0%	3,9%	4,1%	4,1%	4,1%
Pollution Tax	7	15,0%	15,0%	15,0%	15,0%	15,0%
Heating and gas	8	5,0%	5,2%	5,4%	5,4%	5,4%
Maintenance	9	5,0%	5,2%	5,4%	5,4%	5,4%
Efficiency	10	-1,5%	-1,5%	-1,5%	-1,5%	-1,5%

Notes

1 Volumes - based upon average change in consumption in Tallinn in the last five years (source ASTV financial and management accounts)

2 Price - contractually agreed increase for 2011, Ministry of Finance estimated for period to 2014.

Storm water and fire hydrants revenues have been increased as per cost increase

3 CPI- Ministry of Finance estimates for period to 2014

4 Tax on water - official Ministry of Environment statistics

5 Chemicals - 1,5 x CPI

6 Electricity - 2010 actual market price used for 2011 thereafter 1.5x CPI.

7 Pollution taxes - official ministry of environment statistics

8 Heating and Gas - 2 x CPI

9 Maintenance - 2011 calculated on same volume of work increased by known ashpalt price changes. Thereafter 2 x CPI.

10 Efficiency coeficient - (-1.5%) applicable on fixed costs as per CA recommendation for the Energy sector

ANNEX 5 FINANCIAL TABLES - Table 3 - Key Non-financial Indicators

Indicators relate to the Services Area in the City of Tallinn only

	Note	2010	2011	2012	2013	2014	2015
Population Served	1	411 902	411 902	411 902	411 902	411 902	411 902
Customer connections - Domestic		19 709	19 709	19 709	19 709	19 709	19 709
Customer connections - Commercial		2 899	2 899	2 899	2 899	2 899	2 899
Surface Water produced (000 m3)	2	20 443	20 443	20 647	20 854	21 062	21 273
Ground Water produced (000 m3)	2	2 716	2 716	2 743	2 771	2 798	2 826
Volumes sold (w&ww) - Domestic (000	3	27 550	27 550	27 825	28 103	28 385	28 668
Volumes sold (w&ww) - Commercial (0	3	8 505	8 505	8 632	8 762	8 893	8 982
Wastewater volumes treated (000 m3)	4	41 232	41 232	41 232	41 232	41 232	41 232

Notes

1. The precise number for the current population served is not known but no population growth is assumed.
http://www.tallinn.ee/Tallinna-elanike-arv

2. Consumption increase balanced by leakages decrease

3. Total water and wastewater volumes

4. Wastewater volumes treated are driven by the amount of rainfall. ASTV operates a combined network in much of the city

ANNEX 5 FINANCIAL TABLES - Table 4 - Calculation of Regulatory Capital Value

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Gross value (incl reported revaluations)															
Opening balance	3 271 747	3 516 183	3 680 268	3 765 509	3 904 452	4 131 949	4 369 236	4 724 963	5 242 339	5 252 707	5 412 163	5 633 666	5 782 345	5 944 112	6 113 802
(+) CAPEX															
Enhancement infrastructure	0	0	5 929	93	19 513	754	2 368	203	2 650	13 043	1 750	1 754	1 760	1 765	1 770
Maintenance non-infrastructure	72 628	50 255	74 359	47 708	46 722	42 629	5 316	36 623	30 489	33 476	34 656	36 004	37 407	38 907	40 471
Enhancement non-infrastructure	0	0	0	15 911	25 550	30 422	54 046	0	3 936	8 695	82 229	1 754	1 760	1 765	1 770
(+) Indexation (asset specific)															
Asset specific (annual)	189 761	126 583	47 843	112 965	160 083	181 806	288 370	491 396	-5 242	136 570	135 304	146 475	156 123	160 491	165 073
HY of CAPEX	2 077	897	520	949	1 863	1 606	2 005	1 868	-19	713	1 474	510	549	569	590
(-) Depreciation for the year	-62 472	-66 465	-70 119	-73 188	-73 695	-74 490	-72 341	-80 266	-77 974	-76 518	-78 916	-84 577	-84 412	-84 336	-84 354
(+) Difference between IRE and IRC	42 442	52 816	26 708	34 503	47 462	54 561	75 965	67 551	56 527	43 476	45 007	46 758	48 581	50 529	52 560
Closing balance	**3 516 183**	**3 680 268**	**3 765 509**	**3 904 452**	**4 131 949**	**4 369 236**	**4 724 963**	**5 242 339**	**5 252 707**	**5 412 163**	**5 633 666**	**5 782 345**	**5 944 112**	**6 113 802**	**6 291 682**
Average RCV	3 393 965	3 598 225	3 722 889	3 834 981	4 018 200	4 250 593	4 547 100	4 983 651	5 247 523	5 332 435	5 522 914	5 708 005	5 863 229	6 028 957	6 202 742

ANNEX 5 FINANCIAL TABLES - Table 5 - Company's Privatisation Value

	tuh.kr
Price paid (50.4%)	1 328 200
Equity value	2 635 317
Value of Debt	636 430
Invested capital	**3 271 747**

ANNEX 5 FINANCIAL TABLES - Table 6 - ASTV Fixed Asset Capex 2010 - 2015

				2010	2011	2012	2013	2014	2015
Infrastructure CAPEX				**56 519**	**46 757**	**48 512**	**50 341**	**52 293**	**54 330**
Maintenance				43 476	45 007	46 758	48 581	50 529	52 560
Enhancement				13 043	1 750	1 754	1 760	1 765	1 770
Non Infrastructure CAPEX				**42 172**	**116 884**	**37 758**	**39 167**	**40 672**	**42 241**
Maintenance				33 476	34 656	36 004	37 407	38 907	40 471
Enhancement				8 695	82 229	1 754	1 760	1 765	1 770

* Only investments to regulated business are shown.
Investments to be reimbursed by clients or covernment are excluded.

ANNEX 5 FINANCIAL TABLES - Table 7 - Comparison of WACC estimates

Price control period	**PR99**	**PR04**	**PR09**
Years	**99-04**	**04-09**	**09-14**
Ofwat			
Risk-free rate (real)	2,75%	2,75%	2,00%
Debt premium	1,75%	1,10%	1,60%
Equity beta	1,0	1,0	0,9
ERP	3,50%	4,50%	5,40%
Asset beta	0,5	0,5	0,4
Gearing	47,5%	55,0%	57,5%
Tax	30%	30%	28%
Cost of debt (pre-tax)	4,50%	3,85%	3,60%
Cost of equity (post-tax)	6,08%	7,25%	7,08%
Vanilla WACC	5,33%	5,38%	5,08%
Tallinn Water (implied by Ofwat)			
Gearing	50%	50%	50%
Country risk premium	2,50%	2,00%	1,50%
Equity beta	1,0	0,9	0,8
Cost of debt (pre-tax)	7,00%	5,85%	5,10%
Cost of equity (post-tax)	8,74%	8,80%	7,82%
Vanilla WACC	**7,87%**	**7,33%**	**6,46%**

ANNEX 5 FINANCIAL TABLES - Table 8 - Tariff calculation based on allowed revenue (EUR)

		2010	2011	2012	2013	2014	2015
Allowed water and sewerage revenue			43 507	45 815	47 481	48 924	50 831
Allowed tariff change			6,0%	5,3%	3,6%	3,0%	3,9%
Requested revenue change			3,5%	3,8%	3,9%	3,9%	3,7%
Requested tariff change			3,5%	2,6%	2,7%	2,7%	2,7%
Total revenue (requirement)		**41 032**	**42 468**	**44 086**	**45 809**	**47 600**	**49 361**
Volumes							
Domestic Water	m3	13 868	13 868	14 007	14 147	14 289	14 431
Domestic Sewage	m3	13 681	13 681	13 818	13 956	14 096	14 237
Commercial Water	m3	4 047	4 047	4 108	4 170	4 232	4 275
Commercial Sewage	m3	4 458	4 458	4 524	4 592	4 661	4 708
		36 055	**36 055**	**36 458**	**36 865**	**37 278**	**37 651**
Revenue							
Domestic Water	EUR	13 289	13 754	14 278	14 836	15 416	15 987
Domestic Sewage	EUR	10 558	10 928	11 344	11 788	12 248	12 702
Commercial Water	EUR	9 562	9 897	10 273	10 675	11 092	11 503
Commercial Sewage	EUR	7 623	7 889	8 190	8 510	8 843	9 170
		41 032	**42 468**	**44 086**	**45 809**	**47 600**	**49 361**
Tariff							
Domestic Water	EUR/m3	0,96	0,99	1,02	1,05	1,08	1,11
Domestic Sewage	EUR/m3	0,77	0,79	0,82	0,84	0,87	0,89
Commercial Water	EUR/m3	2,36	2,44	2,50	2,56	2,62	2,69
Commercial Sewage	EUR/m3	1,71	1,76	1,81	1,85	1,90	1,95
Average tariff		1,14	1,18	1,21	1,24	1,28	1,31
tariff change (check)			*3,5%*	*2,7%*	*2,8%*	*2,8%*	*2,7%*

ANNEX 5 FINANCIAL TABLES - Table 9 - Tariff calculation based on allowed revenue (EEK)

		2010	2011	2012	2013	2014	2015
Allowed water and sewerage revenue			680 729	716 846	742 909	765 502	795 334
Allowed tariff change			6,0%	5,3%	3,6%	3,0%	3,9%
Requested revenue change			3,5%	3,8%	3,9%	3,9%	3,7%
Requested tariff change			3,5%	2,6%	2,7%	2,7%	2,7%
Total revenue (requirement)		**642 011**	**664 481**	**689 789**	**716 754**	**744 778**	**772 334**
Volumes							
Domestic Water	m3	13 868	13 868	14 007	14 147	14 289	14 431
Domestic Sewage	m3	13 681	13 681	13 818	13 956	14 096	14 237
Commercial Water	m3	4 047	4 047	4 108	4 170	4 232	4 275
Commercial Sewage	m3	4 458	4 458	4 524	4 592	4 661	4 708
		36 055	**36 055**	**36 458**	**36 865**	**37 278**	**37 651**
Revenue							
Domestic Water	EEK	207 930	215 208	223 404	232 138	241 214	250 138
Domestic Sewage	EEK	165 203	170 985	177 497	184 436	191 647	198 738
Commercial Water	EEK	149 610	154 847	160 744	167 028	173 558	179 980
Commercial Sewage	EEK	119 268	123 442	128 144	133 153	138 359	143 478
		642 011	**664 481**	**689 789**	**716 754**	**744 778**	**772 334**
Tariff							
Domestic Water	EEK/m3	14,99	15,52	15,95	16,41	16,88	17,33
Domestic Sewage	EEK/m3	12,07	12,50	12,85	13,22	13,60	13,96
Commercial Water	EEK/m3	36,96	38,26	39,13	40,06	41,01	42,10
Commercial Sewage	EEK/m3	26,76	27,69	28,32	29,00	29,68	30,48
Average tariff		17,81	18,43	18,92	19,44	19,98	20,51
tariff change (check)			*3,5%*	*2,7%*	*2,8%*	*2,8%*	*2,7%*