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ENVIRONMENTAL AND RESOURCE POLICY AND SIGNIFICANT ENVIRONMENTAL ASPECTS AT REYKJAVÍK ENERGY – DEVELOPMENT AND STRUCTURE

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ABSTRACT

The environmental and resource policy reflects Reykjavik Energy (RE) and its subsidiaries' commitment to continually improve in the field of environmental affairs. It serves as a guide to the company and forms the basis for good collaboration with stakeholders. The environmental and resource policy is rooted in the values of the owners of RE as well as core values of the company. The policy centres on five core principles. Then for each of the five principles the policy is implemented through targeted management and continuous improvement in significant environmental aspects.

1. INTRODUCTION

Maintaining the natural environment and the integrity of underlying ecosystems is an important consideration for any geothermal development project. Despite being considered environmentally benign energy source, geothermal developments have environmental impacts and risks that have to be assessed, mitigated and managed through a formal environmental management system (EMS).

From the beginning the environment has been a key issue in the operation of Orkuveita Reykjavikur (OR) or Reykjavík Energy (RE). RE has three subsidiaries - ON Power, Veitur Utilities and Reykjavik Fibre Network. ON Power operates three power plants: the Nesjavellir and Hellisheidi geothermal plants and the Andakílsárvirkjun hydroelectric station and sells electricity and produces hot water for district heating in the capital area. Veitur Utilities handles the development and management of utility systems, which are mostly exclusively licensed operations. Veitur Utilities distributes electricity and hot and cold water, in addition to running sewerage systems in Iceland's most densely populated areas.

Operations of ON power and Veitur are certified in accordance with the ISO 14001 environmental management system. The system entails the continuous monitoring of all stations and the evaluation and analysis of the effects operations have on the environment and community and the remedies required to reduce negative impacts. The importance of environmental issues was stressed further when environmental issues were made visible in the organisation chart of the company.

The Annual Environmental Report focuses on the progress of the most significant environmental aspects that have been defined under the five principles laid down in the environmental and resources

policy of RE and its subsidiaries. They focus on responsible resource management, the value of utility operations, emissions into the environment caused by activities, the impact of the Group's operations and management. The values of RE and its subsidiaries: foresight, efficiency and integrity serve as the guiding principles for the implementation of the policy. The preparation of the 2015 Environmental Report, was founded on the sustainability reporting guidelines of the Global Reporting Initiative (GRI). This paper first briefly reviews the main environmental impacts of geothermal development and then describes the development and structure of RE ´s Environmental Management System and is entirely based on Reykjavík Energy´s 2015 Environmental Report (Reykjavík Energy, 2016).

2. ENVIRONMENTAL IMPACT OF GEOTHERMAL DEVELOPMENT

The environmental impact of geothermal development can be divided to 6 major categories (Shortall et al., 2015).

2.1 Landscape and visual impacts

Power plants usually are built on the site of geothermal reservoirs where land is required for exploration and generation activities. Geothermal fields are often situated in places of natural beauty such as national parks and forests. The presence of drilling activity, pipelines, transmission lines and electric generating facilities introduce forms, shapes, and colours that are inconsistent with the natural landscape. Installed pipelines can disrupt natural habitats and the surface morphology. Removal of vegetative cover, and exposure of soil can cause reduction in visual aesthetics. This implies that valuable natural habitats and recreation areas may have to yield to extractive activities as well as electric generation plants and transmission lines, all of which could have a negative impact on outdoor recreation experience (Hunt, 2001; Kristmannsdóttir and Ármannsson, 2003; Gehringer and Loksha, 2012).

Experience at RE operations in Hellisheidi shows that it is important for construction designs to take into account the procedures that are used in restoration. It is also very important to instruct earthworks and servicing contractors at the beginning of a project and when new workers start working. Potential disturbance to nature that may be caused by earthworks need to be carefully reviewed, along with the goals for the removal and restoration of vegetation and soil. Good working procedures should be presented.

2.2 Impact of mass withdrawal

Large-scale exploitation of liquid-dominated high temperature geothermal systems involves withdrawal of large volumes of geothermal fluids. This can lead to the degradation, disappearance, shift or transformation of thermal and/or cultural features like hot springs, hot pools, mud pools, fumaroles and sinter terraces. Surface subsidence can also result from the reduction in formation pore pressure due to a compaction in rock formations that have high compressibility. Such subsidence can compromise the stability of pipelines, drains and well casings in a geothermal field, as well as residential buildings (Hunt, 2001; Kristmannsdóttir and Ármannsson, 2003).

2.3 Impact on air quality

Geothermal fluids (steam and hot water) usually contain non-condensable gases (NGC) such as carbon dioxide (CO_2), hydrogen sulphide (H_2S), ammonia (NH_3) and methane (CH_4), which contribute to climate change, acid rain and air pollution if released into the atmosphere. They also contain trace amounts of mercury (Hg), arsenic (As) and boron (B). The emissions are mainly from the gas exhausters of power plants that are discharged through the cooling towers (Hunt, 2001; Gehringer and Loksha, 2012; Shortall et al., 2015). Air quality management measures involve NGC gas distribution

prediction modelling to find the impacts on local air quality, based on meteorological data etc. and plans for mitigation measures and monitoring programs.

2.4 Impact on water quality

Discharge of spent geothermal fluids is a potential source of chemical and thermal pollution. Disposal water from geothermal power plants is warmer than ambient water, therefore may cause thermal pollution when discharged to nearby streams or lakes. Untreated disposal geothermal fluids can lead to chemical poisoning of fauna and flora living near the water since toxic substances may bio-accumulate through the food chain. Surface disposal of large volumes of spent geothermal fluids may cause soil erosion and contamination of groundwater sources (Hunt, 2001; Gehringer and Loksha, 2012). Water quality management measures involve hydrological studies to map ground water flows in the area, determining the chemical characteristics of streams and lakes. Design features to take into account when managing discharge include eventual re-injection, management of flora and fauna to capture the potential impact of discharge and plans for mitigation measures and monitoring programs.

2.5 Impact on noise levels

Noise pollution accompanies geothermal exploration and operations. This may affect natural silence and opportunity for solitude. The noise associated with drilling and well testing activities as well as from operating geothermal power plants could be a problem to humans and animals living nearby if not addressed (Hunt, 2001; Gehringer and Loksha, 2012; Shortall et al., 2015). Noise can be reduced by e.g. the use of noise barriers, silencers and limitations of heavy vehicles,

2.6 Induced seismicity

The majority of high-temperature geothermal systems lie in tectonically active regions with high stress levels in the upper parts of the crust, which are manifested by active faulting and frequent earthquakes. High wellhead reinjection pressures increase the pore pressure in deep existing fractures, allowing a sudden release of stress, that results in an earthquake due to induced seismicity (Hunt, 2001; Shortall et al., 2015). The purpose of re-injection usually is disposal of geothermal fluids and maintenance of pressure and fluid in the reservoir. Mitigation measures for induced seismicity might include monitoring networks for seismicity, risk assessment and mitigating plans and procedures to mitigate eventual inconvenience or damage.

3. ENVIRONMENTAL MANAGEMENT SYSTEMS

3.1 General

An Environmental Management System (EMS) is a system that helps an organization achieve its environmental goals through consistent review, evaluation, and improvement of its environmental performance. The EMS itself does not dictate a level of environmental performance that must be achieved; each organization's EMS is tailored to its own individual objectives and targets. The development of RE EMS is described below.

3.2 Development of RE environmental management system

The most commonly used framework for an EMS was developed by the International Organization for Standardization (ISO) for the ISO 14001 standard. Established in 1996, this framework is the official international standard for an EMS, which is based on the Plan-Do-Check-Act methodology. The development of the RE EMS was rooted in the ISO 14001 standard and the development went through five stages, closely following the 14001 standard.

The five main stages of the development of an EMS, as defined by the ISO 14001 standard, are described below in the context of RE EMS:

1. **Commitment and Policy.** Following a financial transformation of RE in 2010-2011, the emergence of new company values were acknowledged within the firm. After a comprehensive review of environmental and resource related issues within the company an environmental and natural resources policy, that contained five specific principles, that reflected the altered values and ambitions of owners, RE's Board and employees was accepted by top management as well as the company Board. The policy then became the foundation of the EMS.

2. **Planning.** Second, following the company-wide consultation, significant environmental and natural resource aspects were identified for company operations for each of the five principles. Emphasis was put on including both negative (e.g air pollution) and positive elements (e.g. access to hot water). Once the significant aspects were identified, objectives and targets for each significant environmental aspect were set and for each aspect responsibility for observation, data gathering and mitigation actions were assigned and an action plan for meting the target was created. The action plan detailed responsibility, resource (financial and man-power) needs and technology needs to fulfil the target.

3. **Implementation**. Following the planning stage, implementation took place. The important components of the RE implementation plan included employee training and awareness for all employees and documentation, defining operation procedures and internal and external communication plan. The RE operations handbook was reviewed in light of the new environmental and natural resources policy and the defined significant environmental aspects. Currently the handbook contains documentation of each principle and each significant environmental aspect and its relevance to each of RE subsidiary. Each documentation contains detailed description of the management of each factor such as operation procedures, monitoring, measures and quality control.

4. **Evaluation**. Following implementation, a plan was created to monitor the company operations to evaluate if the company is fulfilling its targets for each environmental aspect. Furthermore, a plan was set to illustrate corrective or mitigating actions if targets are not being met. Plans for factor specific actions for each factor are provided for each year.

5. **Review.** The final step was to design a plan for top management for review the performance for each environmental factor to determine if the EMS is working. A plan for revising the EMS in accordance with that review was established. This last stage then creates a loop of continuous improvement.

4. RE ENVIRONMENTAL MANAGEMENT POLICY AND SYSTEM

Below we detail the five principles of RE´s environmental and resource policy (Stage 1 Policy), as well as the main aspects emphasized (Stage 2 Planning).

4.1 RE environmental and resource policy

The Environmental and Resource policy reflects RE and its subsidiaries' commitment to continually improve in the field of environmental affairs. It serves as a guide to the company and forms the basis for good collaboration with stakeholders. The Environmental and Resources policy is founded on the values of the comprehensive policy of the RE Group.

RE and its subsidiaries comply with all the statutory and regulatory provisions that apply to its activities. The environmental and resources policy is established on the basis of the following five principles and implemented in detail through targeted management and improvements in significant environmental aspects:

- Responsible resource management;
- Importance of utility operations;
- Impact of emissions and discharge;
- Impact on society;
- Operations; and

Responsible resource management
Reykjavík Energy is entrusted with responsibility for the resources that it utilises. The responsibility entails working according to the ideology of sustainable development and therefore ensuring sustainable utilisation. This is so that future generations can enjoy the same opportunities as current generations to utilise the resources, and that it is possible to confirm RE's commitment to that goal. Reykjavík Energy undertakes to seek effective solutions in which the utilisation of resources for the public benefit is weighed and assessed in the context of other interests. RE shall protect the resources from threats and intrusions in line with the responsibility the company has been entrusted with.

Importance of utility operations
Access to RE's utilities promotes healthy living and opportunities for eco-friendly operations in the community. This positive environmental impact is a determining factor in decision-making regarding the development of power plants and utilities. Decisions are based on RE setting the bar high for quality, delivery security and efficiency, and it publishes detailed information on its activities and future plans.

Impact of emissions and discharge
RE's operations inevitably result in substances and energy being released into the environment. OR takes the utmost precautions in its operations. Emissions are therefore only allowed to occur in a manner that has a negligible impact on health and an acceptable effect on the environment. RE strives to reduce the emission of pollutants as much as possible and prioritises research and development to seek the best possible solutions for that purpose.

Impact on society
Nationally RE is a big company and its workforce possesses extensive knowledge and experience in the use of geothermal energy and other aspects of the company's operations. The company passes on its know-how and influences the value chain, which encourages a responsible treatment of the environment and has a positive impact on the community.

Operations
RE's operations are founded on the organised and disciplined working procedures of many employees in widespread work sites. Day-to-day tasks include, among other things, the responsible utilisation of supplies, maintenance, tending to plots of land, handling waste responsibly and promoting eco-friendly transport. RE aims to run exemplary operations and to develop its personnel's qualifications in this regard.

4.2 Significant environmental aspects

RE has defined significant environmental aspects with regard to the five principles stated in the environmental and resource policy. RE sets goals regarding these environmental aspects and defines responsibilities (Table 1).

TABLE 1: Defined significant environmental aspects

Responsible resource management
Managing production in high-temperature geothermal fields Managing production in low-temperature geothermal fields Developing areas by power plants and other premises Conservation of potable water resources
Value of utility operations
Access to a more diversified utilisation of high-temperature geothermal resources Access to electricity utility Access to hot water utility Access to cold water utility Access to sewage system utility Access to fibre network utility
Impact of emissions and discharge
Discharge of disposal water and monitoring of groundwater Hydrogen sulphide emissions Carbon dioxide, hydrogen and methane emissions Seismic activity induced by reinjection of disposal water Discharge of wastewater from sewage treatment plants Discharge of drainage through overflows
Impact on society
Dissemination of knowledge on geothermal energy utilisation and other aspects of operations Procurement
Operations
Waste Transport Structures and maintenance Use of hazardous substances

We now review how the identified significant environmental aspects are dealt with in the company.

4.3 Responsible resource management

Four significant environmental aspects have been defined under this principle:

i) Managing production in high-temperature geothermal fields.
Objective: To ensure RE Power's geothermal power plants receive the geothermal energy required to meet its energy sale obligations within the utilisation framework stipulated in the operating licence of the Hellisheidi Geothermal Power Plant. Comparable criteria are assumed to apply to Nesjavellir. Goals on the utilisation of geothermal energy are expressed in terms of criteria regarding how fast pressure and temperatures may drop in the geothermal reservoir. The pressure and temperatures in wells are regularly measured, and changes are closely monitored. This makes it possible to predict how the fields will respond in the future. The conceptual model for Hengill is regularly revised to gauge how the production capacity of the plants can be maintained in the future to guarantee a responsible utilisation of geothermal resources. Production reports are compiled annually and submitted to the National Energy Authority.

ii) Managing production in low-temperature geothermal fields.
Objective: To ensure water extraction in low-temperature fields does not curtail the possibility of corresponding water extraction in the future. Veitur Utilities operates fourteen heating utilities with decades of experience in geothermal production utilizing numerous low-temperature fields. The measurements of water levels and temperatures in wells are used to

monitor how the production fields respond to utilization. Samples of water for chemical analysis are collected annually from all drillholes. It is possible to respond to changes by: reducing production, reinjecting in fields and re-casing wells. Production reports for the heating utilities are compiled annually and submitted to National Energy Authority.

iii) Developing areas by power plants and other premises.
Objective: To minimise disturbance to the land caused by constructions and to restore the disturbed areas in harmony with the surrounding landscape, see guidelines on visual impacts and restoration. The roads, tracks and paths that are required for the constructions shall also be utilised, where appropriate, to improve access to nearby nature areas. Travellers shall be given a opportunity to learn on-site about the utilisation of natural resource and the nature in nearby areas. The operations of RE and its subsidiaries are broad ranging and vast areas of land have been allocated to their activities. The companies administer about 19,000 ha of land, some 16,000 ha of which are within protected areas.

iv) Conservation of potable water resources.
Objective: To ensure that water supplies, which users of Veitur Utilities rely on, are not contaminated. Veitur Utilities has a duty to meet the water requirements of people and companies in the utility area. Potable water shall fulfil the provisions of the Regulations on Food Inspection and Hygiene. RE and subsidiaries have 15 water sources, and the water is piped to towns and communities in West Iceland, South Iceland and the capital area. Preventive measures are systematically worked on and the quality of the water is monitored. Risk factors in water protection areas and distribution systems are analysed, and health authorities in each utility area regularly take samples to monitor the quality of the water and respond to notifications of required repairs and improvements.

4.4 Value of utility operations

Four significant aspects have been defined under this principle that pertains to geothermal and water related management:

i) Access to a more diversified utilisation of high-temperature geothermal resources.
Objective: To make multiple uses of the products of high-temperature geothermal power plants, particularly thermal energy and electricity, in addition to streams of substances that would otherwise have to be discharged or disposed of, depending on environmental and efficiency requirements. The product offering shall be based on the efficient operation of systems in the core operations of RE Power. Multiple use of geothermal energy can increase efficiency and strengthen environmentally sound operations and innovation in the business community. For this purpose contribution to multiple utilisations in the Hengill area has been made by producing a local plan for a resources park at the Hellisheidi geothermal power plant with the aim of utilizing all the natural resources emanating from the plant.

ii) Access to electricity utility.
Objective: i) To ensure residents and business operations in Veitur Utilities' distribution areas have the option of connecting with an electricity utility. ii) Ensure power outages in electricity utilities are negligible, thanks to, among other things, the reliability of the construction of the distribution grid. iii) Ensure the quality of the electricity complies with quality standards and regulations. The load on the electricity grid is continually monitored and the quality of the voltage is evaluated on an annual basis. The electricity supply has to fulfil quality standards and statutory and regulatory provisions. Operational disturbances in the grid is monitored and analysed. Factors such as the weather and construction have a considerable impact on the number of disturbances.

iii) Access to hot water utility.
Objective: i) To ensure that residents within Veitur Utilities' distribution areas have the option to connect to the distribution system in accordance with the company's connection terms. ii) Upon fulfilment of residents' needs, companies shall have the option of utilising hot water for industrial operations. The expansion of the distribution system and customers particular connections shall be determined by, for example, technical prerequisites and cost-effectiveness. Veitur Utilities operates fourteen district heating utilities, seven in South Iceland, six in West Iceland and one in the capital area, which is the largest and produced about 74 million m^3 of water in 2015.

iv) Access to cold water utility.
Objective: To ensure residents in the distribution area of Veitur Utilities have guaranteed access to water in accordance with quality standards and regulations. After fulfilment of the needs of residents, companies have the option to utilise potable water for production or export. The expansion of the distribution system outside urban areas and customers' particular connections shall be determined by, among other things, technical prerequisites and cost-effectiveness. Veitur Utilities ensures the supply of potable water to the residents and business community in the distribution area, in accordance with established quality standards and statutory and regulatory provisions.

4.5 Impact of emissions and discharge

Four significant aspects have been defined under this principle that pertain to geothermal and water related management:

i) Discharge of disposal water and monitoring of groundwater.
Objective: i) To ensure that requirements in power plant and operating licenses are fulfilled regarding chemical and heat pollution in groundwater outside the defined dilution areas in the vicinity of the power plants. ii) To ensure no disposal water is discharged on the surface of the ground, except if breakdowns occur. iii) To offset the pressure drop in the geothermal system.

At the Hellisheidi geothermal power plant, most of the fluid that is harnessed is returned to the geothermal reservoir by reinjection into wells. The fluid is called disposal water, which means both separated water and condensate water. In accordance with the power plant licence, all separated water and part of the condensate water needs to be reinjected into the geothermal reservoir. This is done to protect surface water and groundwater, in addition to better utilizing the geothermal reservoir. The volume of water injected is measured, recorded and reported to the National Energy Authority. The impact of the Hellisheidi geothermal power plant on groundwater in surveillance wells at and around the plant is monitored. Samples are taken for analysis of overall chemical and heavy-metal content, in addition to measuring their temperature, conductivity and acidity. The concentration of dissolved solids in wells is far below the limits set for potable water and has not increased since the plant started operating.

Disposal water at the Nesjavellir geothermal power plant consists of separated water and condensate water, but also heated groundwater, which is used to cool machinery but is not utilised in the hot water utility when there is less demand. About half of the separated water and more than half of the condensate water are now re-injected into the lower groundwater layer via injection wells, while the rest is released on the surface, i.e. into shallow wells or nearby brook. The impact of the power plant on groundwater in surveillance wells is monitored near the power plant. In addition to temperature measurements in the wells, the chemical composition and temperature in brooks near the power station and springs by Lake Thingvallavatn are also monitored.

ii) Hydrogen sulphide emissions.
Objective: To ensure compliance with regulations regarding the concentration of hydrogen sulphide in the atmosphere.

Hydrogen sulphide (H_2S) causes air pollution in the vicinity of the power plants in the Hengill area and has been the biggest environmental issue that ON Power grapples with in its operations. Hydrogen sulphide emissions from the Nesjavellir and Hellisheidi geothermal power plants amounted to approximately 15 thousand tons in 2015. In accordance with the provisions of operating licences, the concentration of hydrogen sulphide in the atmosphere is monitored in the vicinity of the power stations and in populated areas, in collaboration with the South Iceland Health authorities, In 2015, the concentration of hydrogen sulphide was below the annual average. The concentration was also below the environmental limits for the maximum daily running 24-hour average (50 $\mu g/m^3$). The concentration of hydrogen sulphide was below the notification limits (150 $\mu g/m^3$). All data can be found on the ON Power website.

iii) Carbon dioxide, hydrogen and methane emissions.
Objective: To increase the multiple utilisations of ON Power's power plants by making geothermal gases marketable, depending on cost-effectiveness.

Carbon dioxide emissions from the Nesjavellir and Hellisheidi geothermal power plants amounted to a total of 48 thousand tons in 2015. Hydrogen emissions totalled 900 tons and methane 135 tons. Over the past years there has been a growing interest to utilise geothermal gases of high-temperature resources. The CarbFix project started at the Hellisheidi geothermal power plant in 2007. Its goal is to reduce carbon dioxide emissions from the power plant by reinjecting it, dissolved in water, into the basaltic bedrock in the vicinity and sequestering it there in mineral form. Some 3,900 tons of carbon dioxide were channelled down into the bedrock in 2015, i.e. over 10% of the carbon dioxide annually emitted by the plant.

i) Seismic activity induced by reinjection of disposal water.
Objective: To ensure that seismic activity that may be associated with the reinjection of disposal water causes the least possible inconvenience and never damage.

Seismic activity may be associated with the reinjection of disposal water. The seismic activity is monitored by the Icelandic Meteorological Office. The National Energy Authority, in consultation with energy companies and other entities has prepared rules and guidelines regarding preparations and responses to seismic activity due to the injection of liquids into the earth through wells.

4.6 Impact on society

Two significant aspects have been defined under this principle:

i) Dissemination of knowledge on geothermal energy utilisation and other aspects of operations.
Objective**:** To ensure information, which may be useful to others and does not undermine the utility systems of the OR Group or its business interests, is accessible. This applies to, for example, reports, articles and presentations, insofar as possible, as well as published promotion material.

The personnel of OR and its subsidiaries possesses a vast knowledge regarding the production and distribution of power and water to residents and businesses. It is important to pass on this useful know-how which can encourage a responsible treatment of the environment and have a positive social impact.

Annually OR Group held a Science Day. Its purpose is to present research conducted for and in collaboration with the companies of the group. ON Power manage and operates the geothermal exhibitions at Hellisheidi geothermal power plant which is open to public all the year around.

ii) Procurement.
Objective: To take the environmental impact of procurement into consideration wherever possible by, for example, analyzing life cycle costs and applying recognized environmental criteria and checklists. Procurement shall be organized and coordinated bearing side effects in mind, such as transport and the quantity of packaging. OR and its subsidiaries' purchases of goods and services are extensive.

Procurement requirements are systematically analysed in all RE subsidiaries and efforts are made to utilise materials that have been purchased or are in stock or to sell them off. In tenders for vehicles in 2015, criteria were set for carbon dioxide emissions (80g CO_2/km) for cars, and in a tender for delivery vans, the possibility of requiring them to be powered by methane was explored. This proved to be unsuitable, but as a result more efficient vans were bought.

4.7 Operations

Four significant aspects have been defined under this principle that pertain to geothermal and water related management:

i) Waste.
Objective: i) To minimise waste and recycle as much as possible. ii) To ensure the least possible amount of active waste is buried in landfills. The staff's awareness of recycling and sorting issues has generally been good. In 2015 information was gathered for the Environmental Report regarding the gravel, soil and asphalt that is accumulated and disposed of in projects. Most of the asphalt goes into recycling. By sorting and recycling waste, all RE employees can make a contribution and minimise our impact on the environment.

ii) Transport.
Objective: i) To ensure that transport due to the operations of RE and its subsidiaries emits the least possible greenhouse gases by selecting vehicles with the lowest emissions and that are deemed cost-effective and suitable for operations. ii) To encourage employees to choose eco-friendly means of transport to and from the workplace. RE and its subsidiaries shall play an active role in acquiring experience and disseminating knowledge about foreseeable changes in energy sources for transport. RE and its subsidiaries have completed work on an eco-friendly transport strategy. The focus is on eco-friendly vehicles, fuel and infrastructure to ensure access to eco-friendly energy, along with the utilisation of various modes of transport.

iii) Structures and maintenance.
Objective: i) To ensure all of the structures and lots of the RE Group are tidy and blend in harmoniously with their environment. ii) To ensure that the design of structures and restoration of lots are in accordance with visual impact and restoration guidelines. Lots and structures of RE and its subsidiaries are kept tidy, despite limited financial resources. Guidelines have been issued on the visual impact and restoration of vegetated land following projects. New guidelines will also be issued on how it is possible to reclaim local vegetation in urban areas.

iv) Use of hazardous substances.
Objective: i) To minimise the use of hazardous substances as much as possible and dispose of them responsibly. ii) To facilitate access to information regarding harmless substances that

can substitute hazardous ones. Workshops and courses were held for the employees of RE and its subsidiaries regarding hazardous substances. At the same time procedures were reviewed on the choice of substances used in operations.

Other environmental factors that are effectively dealt with but are not included as a significant environmental factor is noise and radiation.

4. CONCLUSION

Environmental issues are an important element in the social debate and RE and subsidiary's performance in this field is important. RE has issued environmental and resources policy which reflects Reykjavik Energy and its subsidiaries' commitment to continually improve in the field of environmental affairs. It serves as a guide to the company and forms the basis for good collaboration with stakeholders. The environmental and resources policy is established on the basis of principles and implemented in detail through targeted management and improvements in significant environmental elements. The results of the operation and its monitoring is issued and explained in annual environmental report of the company which is a vital tool for helping the company achieve its environmental goals. To present the findings on environmental issues openly in the Environmental Report often dealt with in the media, where noteworthy results are presented as well as challenges, gives RE's employees, customers and other stakeholders an opportunity to study and contribute to the debate. The checks RE has met from these stakeholders have pushed the company along the way. Overall, this debate strengthens rather than weakens the company. That has been valuable in developing the projects that are believed contribute to a better environment.

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