**Annual Report on Environmental and Social Activity Progress for 2013**

**April 2014**

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## Environmental compatibility of operations

Main efforts of JSC RAO Energy System of East in order to increase environmental compatibility of the company’s operations for thermal and electric power generation, transmission and distribution have been focused on the following tasks:

* to minimize adverse environmental impact due to decreased pollutant emissions and production waste generation, and optimization of resources management;
* to implement environment protection plans of subsidiaries and affiliates considering changes in environmental regulations, which took effect in 2013;
* to improve environmental management system.

In order to achieve the target minimization of adverse environmental impact, investment projects are being executed for power generation facility construction and modernization, which are focused on the use of sustainable gas turbine equipment, use of fuel natural gas with innovative fuel preparation and supply process, as well as low-waste and resource efficient processes.

As a result of implementation of the main projects during 2013, the amount of pollutant emissions have been reduced by 11.2%, bottom ash waste volume - by 8.2%, and power consumption - by 4.3%. Due to introduction of advanced cooling systems, the volume of water intake from surface sources was reduced and the amount of waste water discharge into water bodies was reduced by 4.8%, accordingly. 11 ha of ash-disposal areas were reclaimed.

Control level of greenhouse gas emission monitoring system at JSC FEGC’s generating facilities was increased. Regulatory authorities’ requirements regarding arrangement of sanitary protection zones at Tchulman TPP, Artemovsk TPP and Neryungri GRES were fulfilled.

In general, a positive trend have been seen in decrease of adverse environmental impact as compared with 2012:

when using water from natural sources and water channels at JSC FEGC by 2.4%, at JSC FEDC - by 0.5%,at JSC Mobile Energy - by 6.5%, at JSC Sakhalinenergo - by 10.2% and at JSC Chukotenergo - by 4.3%;

pollutant emissions from stationary sources were reduced at JSC FEGC by 4.3%,at JSC FEDC - by 2.2%, at JSC Yakutskenergo- by 7.1%, at JSC Magadanenergo - by 12.5%, at JSC Mobile Energy - by 6.5%, at JSC Sakhalinenergo - by 8.3% and at JSC Chukotenergo - by 4.1%.

A Program for switch to natural fuel gas is being successfully carried out at several facilities. Gas fraction in fuel balance of RAO ES of East is about 37%. According to preliminary estimates, when the second phase of Vladivistok TPP-2 provision with gas supply is completed, annual emissions shall be reduced up by 55% to 60% as compared with 2010.

Provision of Vladivostok TPP-2 with gas supply is carried out within the program “Development of Vladivostok as an International Cooperation Center in Asia-Pacific Region” as part of the Federal Target Program “Economic and Social Development of Far East and Transbaikal for the Period up to 2013” and is funded through the assets of JSC FEGC.

Pollutant emissions after Kamchatka TPP’s modernization have reduced from 250 mg/m3 to 125 mg/m3.

The list of the main investment projects with ecological efficiency evaluation is attached. The list of Russian and international partners investing in environmental safety of JSC RAO Energy System of East has been generated (attached).

In general, operating expenditures in environmental program within the group of companies were 446.3 mln. RUB in 2013. Environmental charges, including natural resource management, were 264.3 mln. RUB.

Revision and approval of sanitary protection zones at Blagoveshchensk TPP, Yakutsk GRES and Vladivostok TPP-2 were successfully carried out within the investment project implementation.

There were no emergencies and accidents, which could affect the environment, at JSC RAO Energy System of East in 2013.

Subsidiaries and affiliates (SA) Programs have been developed in order to reduce above-limit payments (ALP). According to these programs, several organizational and operational arrangements were carried out in order to develop environmental documentation, retrofit environmental facilities and implement the best available emission purification technologies.

At year-end 2013, over-limit payments, including SA’s penalty costs, were (% from the amount of environmental charges): JSC FEGC - 21.2%; JSC FEDC - 68.6%; JSC FAEC - 48.3%; JSC Kamchatskenergo - 2%; JSC Magadanenergo - 2.5%; JSC Mobile Energy – 25%; JSC Teploenergoservis - 58.7%; JSC Chukotenergo - 1.8%; JSC Kamchatka South Electric Network - 64%; JSC Yakutskenergo - 1.8%; JSC Sakhalinenergo - 0% and JSC Sakhaenergo - 50%. When evaluating the ALP Reduction Program fulfillment, objective factors, which do not depend on subsidiaries’ business, were considered.

Analysis of the SA’s reports about ALP Reduction Program fulfillment during 2013 has shown that ALP reduction as compared with the previous year was:

JSC FEGC - 44.46%;

JSC Kamchatskenergo - 63.7% (without public energy services)

JSC Magadanenergo - 73.9%;

JSC Teploenergoservis - 13.45%;

JSC Chukotenergo - 72.0%;

JSC Kamchatka South Electric Network - 49.8%;

JSC Sakhalinenergo - 100%,

JSC Yakutskenergo - 5.73%;

JSC Mobile Energy - 44.0%,

JSC Sakhaenergo - 12.24%.

Penalty costs and claims for breach of environmental legislation were documented at JSC Magadanenergo - 734.0 thous. RUB and JSC Kamchatka South Eelectric Network - 540. 0 thous. RUB.

Target value was not achieved at JSC FEDC and JSC FAEC, above-limit payments in 2013 as compared with 2012 increased by 3% and 5%.

In JSC FEDC, the above-limit payment reduction program was not developed, reduction measures are not planned and fulfilled.

The main causes of above-limit payments at the group of companies are as follows:

1. Exceeding the established (permitted / temporary approved) rates and limits of natural resource management;

2. absence of developed environmental documentation and delay in obtaining nature use permits;

3. Delay in fulfillment of instructions and requirements by regulatory authorities after inspections, including delay in payment of polluter charges;

4. Insufficient efforts in applying the law when considering disputed issues regarding nature use and defense of SA interests;

5. Poor technical condition of environmental facilities (treatment facilities, waste collection and storage areas, filtration plants, etc.);

6. Bad results in activity approval process and insufficient coordination with local executive authorities regarding division of responsibilities for operation and maintenance of shared-use environmental facilities.

Total reduction of environmental charges over the group of companies in 2013 as compared with 2012 is 40.2 mln. RUB.

Total loss of profit, including penalty costs and claims for violation of environmental legislation, for the group of companies is 39.4 mln. RUB. This is 22.3 mln. RUB less than in 2012.

During 2013, certain activities were carried out to prepare proposals for disposal of bottom ash waste (BAW), accumulated in course of production at the group’s generating facilities using coal fuel.

In order to perform BAW disposal measures, it is proposed first of all to dispose of fly-ash floating fraction (FAFF) as one the BAW materials mostly demanded in the market, from the following generating facilities:

Sakhalin GRES JSC Sakhalinenergo;

Yuzhno-Sakhalinsk TPP JSC Sakhalinenergo;

Partizansk GRES JSC FEGC;

Arkagalinsk GRES JSC Magadanenergo.

For the specified facilities during 2014 and subsequent calendar periods, FAFF disposal is expected in the following amounts:

Sakhalin GRES 2 000 to 3 000 t per year;

Yuzhno-Sakhalinsk TPP 3 000 to 5 000 t per year;

Partizansk GRES 500 to 1 000 t per year;

Arkagalinsk GRES 2 000 to 2 500 t per year.

Total expected: min. 6 500 t; max. 10 000 t per year.

## Improvement of corporate management system (health and safety, environmental protection)

The environmental management system has been improved due to implementation of the best environmental management practices and systems in accordance with international standards ISO 14001, Environmental Management Systems and Health and Safety Systems OHSAS 18001.

In accordance with Credit Agreement No. 44222 dated 05/12/2012 between JSC RAO Energy System of East and European Bank for Reconstruction and Development (EBRD), an Environmental and Social Activity Plan (ESAP) was adopted in order to provide a set of organizational and operational arrangements aimed at increase of ecological efficiency of the group of companies.

Within ESAP, further implementation and certification of the integrated management system in the Group’s SA is planned, including environmental management system, occupational safety and health management system, briefing of the management and personnel responsible for environmental activity arrangement on EBRD requirements regarding environmental protection, increase in monitoring efficiency for asbestos containing materials and water consumption, installation of high-performance polluting emission purification systems similar to CEMS, and switch of Vladivostok TPP-2 (VTPP-2) and other generating facilities to natural gas.

Total investment in the activities within ESAP will be appr. 1.7 – 1.9 bln. RUB.

In order to fulfill the EASP requirements in JSC RAO Energy System of East in 2013, a work group was established under the chairmanship of N.L. Zapriagaeva, First Deputy General Director, JSC RAO Energy System of East.

According to the results of an open centralized tender held in 2013 for development, implementation and preparation for approval of integrated environmental management system and occupational safety and health management system in accordance with the requirements of ISO 14001:2004 and OHSAS 18001:2007, the winner was Research and Production Center ECOSERTIFIKA (Moscow).

In accordance with the decisions made by the work group for ESAP fulfillment, the Directorate for Technical Audit and Industrial Safety is responsible for the IMS (Integrated Management System) work coordination.

Development and approval of the Environmental Policy and Occupational Safety and Health Policy is planned to be carried out during implementation and preparation for certification of the integrated environmental management and occupational safety and health system (hereinafter referred to as IMS) in two steps:

Step 1 - February 2014 till March 2015 at JSC RAO Energy System of East, JSC FEGC, JSC FEDC and JSC Sakhalinenergo;

Step 2 - January 2015 till March 2016 in other generating and network SA within the Group (JSC Sakhaenergo, JSC Chukotenergo, JSC Kamchatskenergo, JSC Magadanenergo, JSC KSEN and JSC Mobile Energy).

As of 01/03/2014:

1. Activities for implementation and certification of the integrated management system as part of ISO 9001, Quality Management System, ISO 14001, OHSAS 18001 were successfully carried out at JSC Yakutskenergo;

2. 43 employees (JSC RAO Energy System of East, JSC FEGC, JSC FEDC, JSC Sakhalinenergo and JSC Magadanenergo) completed the following training courses: Internal Audit of Integrated Management Systems in accordance with ISO 9001:2004, ISO 14001:2004 and OHSAS 18001:2007 and European Union Directive requirements for Environmental Activity Arrangement regarding Emission Minimization and Hazardous Waste Handling.

In quarter 2 and 3 of 2014, it is planned to hold a tender for selection of an accredited certification body for certification of the integrated management systems implemented at Step 1 SA and a centralized tender for selection of work executer for Step 2 SA. Certification of integrated management systems for Step 1 SA is planned to be carried out from the 4th quarter of 2014 till the 1st quarter of 2015.

## Environmental and Social Activity Plan Progress

Part 1 ESV Corporate Environmental and Social Action Plan (ESAP) Dated October 3rd 2012

| **No** | **Action** | **Risks Liability/ Benefits** | **Legislative requirement/ Best practice** | **Investment Needs/ Resources** | **Timetable Action to be Completed by End of Year** | | **Target and Evaluation Criteria For Successful Implementation** | **Comment** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **1** | **General** | | | | | | | |
| 1.1 | Insert clause into new contracts for new developments specifying that subsidiaries and contractors must meet international standards for environmental, health, safety and social management i.e.  *“The contractor will comply with all of the project’s Environmental and Social Requirements,” meaning all requirements of, prohibitions, restrictions or obligations set out in, and commitments made under: (a) any environmental social and health and safety Law or regulation of the country of operation; (b) the Environmental and Social Documentation (e.g. assessment, action, management plans, etc.) for the Project; (c) the EBRD’s Social and Environmental Policy and Performance Requirements, and (d) the requirements of the International Labour Organisation (ILO)”.* | Guarantee a unified adoption of international / EU standards by ESV and its subsidiaries | Russian Federation (RF) / EBRD’s Performance Requirements (PRs) / ILO | Own resources / possibly some minimal legal costs | On-going from first quarter 2013 and for the duration of the loan. | | Evidence of international E&S contractual obligations within ESV’s contracts to subsidiaries and contractors. | Tender documents for selection of general contractor for Vostochnaya TPP project shall include the appropriate contractual provisions for environmental protection, health and safety, which also allow for participation of any subcontractors. For detailed description of Contractor’s obligations regarding environmental protection, safety and health see special appendix, including observance of the EBRD and ILO requirements.  There are no other new developments within the responsibility of JSC RAO ES of East (supported by the changes to the Investment Program made on the basis of the Order of the RF Ministry of Energy No. 637 dated 24 September 2013).  Standard tender documents and contracts were submitted to the affiliates in order to be adopted in July 2013. |
| 1.2 | Provide the Bank with annual report on key environmental, health, safety and social matters. The EHS report should include:   * company status (e.g. plant ownership) and general information on environmental performance, * progress against this ESAP (each item) * information on Greenhouse Gas emission on each plant and the Group * a summary of any areas of non-compliance with Russian or National Environmental Law, or exceedances of the relevant permit levels and any proposed actions * Fine levies for environmental non performance * Safety at the Company, inclusive of any accidents and incidents as well as occupational disease at generating assets and distribution companies * Key Performance Indicators (Generation in MW and KWh, employment; fuel mix; CO2 emissions – total and kgCO2/KWh); | Need to disclose information to the Bank to show compliance with ESAP and current status of EHS issues. | EBRD requirement | Own resources plus external support if required | First report to be prepared for 2013 and to be delivered in the first quarter of 2014. Annually thereafter. | | Annual EHS Report to the EBRD | The report was prepared and submitted to EBRD |
| **2** | **E&S Management, Monitoring, Reporting, Organisational Capacity and Training** | | | | | | | |
| 2.1 | Adequate and qualified Environmental Managers to be appointed within the Group to address environmental issues and ensure compliance and report the Corporate team on environmental issues.  A Corporate EHS management team will be established and maintained. | Reduced environmental impact.  Improved ownership of performance. | Good practice  Corporate Governance  EBRD PR 1 | Own resources | 2013 | | Provide information to the Bank in annual report | By the decision of the Work Group, persons responsible for ESAP execution were appointed from the Directorate for Technical Audit and Industrial Safety. |
| 2.2 | Develop and implement a Holding Company Environmental, Health, Management System (EHMS) in line with ISO requirements i.e. ISO14001 and OHSAS 18001.  Monitor compliance of subsidiaries with corporate requirements for the development and implementation of ISO accredited management systems. The subsidiary compliance monitoring programme to include key performance indicators (KPIs) and milestones to give targets for implementation and improvements.  The EMS will include the development of procedures and policy for land acquisition, including covering land users without legal entitlement and procedures to ensure Indigenous Peoples (IPs) rights are maintained. | Formalisation international management systems for ESV | Voluntary and best practice | Budget required for training of its own staff and/or commissioning external company to produce the EMS and to train their staff to implement. | Evidence of working towards development of implementation by end of 2013. | | Develop a Holding Company EMS.  Attain 14001 and OHSAS 18001 certification by the end of 2014 | Substantial progress is being observed: EHMS development and bringing to conformance with ISO requirements were approved by a corporate directive, several training courses have been conducted within the company. |
| 2.3 | Develop and maintain a special EHS section at ESV official internet site and publish on the internet information on KPI’s including status of EHS management, compliance, as well as key data on carbon emissions and environmental investments. | Ensures higher transparency and social responsibility of the company | RF / EBRD’s PRs / ILO | Own resources – internal or external. | Ongoing from second quarter 2013 and for the duration of the loan. | | EHS information is available on the website and regularly updated. | Information about environmental protection, human recourse management and safety is available on the JSC RAO ES of East website within the Corporate Social Responsibility Report for 2012. The information is updated annually. |
| 2.4 | ESV (or its subsidiaries) to develop and implement, a training programme, for educating all employees, subsidiaries with direct responsibilities for activities relevant to social and environmental performance on the requirements of EBRD and ISO accredited systems. | Ensure a unified adoption of international / EU / EBRD’s standards by ESV and its subsidiaries | EBRD’s PRs and EU | Own resources.  Training budget to include finances to allow for necessary staff time for training. | Fourth quarter 2013. Training ongoing for the duration of the loan (as required). | | Evidence of training procedures in place.  Training attendance logs to be provided. | Training program for development of ISO management systems was prepared and approved by the EHMS development consulting service provider — Ecosertifika. |
| 2.5 | Publish a Corporate Social Responsibility (CSR) report | Enhancing stakeholder communication | EBRD requirement  Good practice | Own resources plus external support if required | By the end of 2014 | | CSR report published | The Corporate Social Responsibility Report for 2012 (CSR report) was published on JSC RAO ES of East website. It contains environmental protection, health and safety issues, including greenhouse gas emission issues and a table of Global Reporting Initiative regulation conformance in accordance with reporting standards. A report for 2013 will be available on the company’s website in April 2014. |
| 2.6 | Map the location, assess the condition and mark asbestos across each power plant across the Group. Specific attention should be placed on the boilers, turbines and pipework. Asbestos should no longer be used as an insulation material. | Potential long term health risk to employees and contractors | EBRD Requirement  Good practice | Own resources plus external support if required | By the end of 2014 | | Mapping completed and all areas of asbestos are clearly labelled | Asbestos-containing component identification and marking measures are planned for each plant within the Group during the investment program implementation. |
| 2.7 | Undertake a review of the water supply and once-through cooling requirements for all the power plants within the Group. | Improved control of the environmental impact.  Improved resilience to future climate change | EBRD requirement (PR3 Compliance).  Good Practice.  Future legal compliance | Own resources plus external support if required | Second quarter of 2014 | | Review completed and results reported to the EBRD | Checks for requirement of water supply and direct-flow cooling are planned within the investment program implementation. Progress reports are attached to Annual Report. |
| **3** | **Social and Environmental Assessment** | | | | | | | |
| 3.1 | Include in the corporate investment plan the costs for the installation of Continuous Emission Monitoring Systems (CEMS) equipment on all new and/or reconstructed power generation facilities (involving replacement or full reconstruction of the gas/steam equipment such as boiler) for each boiler total rated thermal input above 300 MWth (and also including the Project).  CEMS should include: dust, SOx, NOx emissions for coal fired boilers and NOx and CO for gas fired boilers (average in 15 minutes or one-hour period) | Improved control over emissions to air. | EBRD requirement (PR3 Compliance).  Good Practice.  Future legal compliance | €3 to €4m | Ongoing from 2013 | | Installation of CEMS equipment. CEM on new project at commissioning | CEMS installation is included in the Integrated Modernization Program for 2014-2025. An instruction was given to include costs related to CEMS type continuous gas emission monitoring system installation at the new or retrofitted generating facilities of the Group during development of mid-term and long-term investment programs. |
| 3.2 | For all new projects that require an OVOS under Russian Federal Legislation or are above 300 MWthermal, 100 MWe for wind or 50 MWe biomass, develop a Non-Technical Summary (NTS) and disclosed this locally and on the internet. The NST will include a summary fo the Project, impacts, and abatement and mitigation measures. Each NTS will include a short summary of Russian and Intentional requirements and benchmark emissions, including carbon. | This NTS should meet the general disclosure requirements of the EBRD PRs. Social / cultural heritage and QHS issues should be addressed. | EBRD, best practice | Consultancy/Internal | 2013 onwards | | Provide a link to the bank in annual report to NTS, and copy if requested | Non-technical summaries (NTS) are developed and available on the company’s website. |
| 3.3 | All project design documentation for new development to include assessment of achieving compliance with IFC EHS Guidelines and EU Industrial Emission Directive (IED) Best Available Techniques (BAT) Reference documents. As a minimum new projects will aim to comply with IFC EHS Guidelines. All new units will have high efficiency and CEMS installed. Any new coal fired unit (CHPs) will include dust abatement to attain 50 mg/Nm3, and aim to reduce and abate SOx and NOx emissions. A cost benefit assessment will be made for SOx and NOx abatement/ | Ensure unified adoption of EU standards across ESV’s operations. | EU | Consultants/design institute fees. | Ongoing from second quarter 2013 and for the duration of the loan. | | Evidence of EU compliance assessment provided within relevant chapters of design documentation. | Currently, the Group’s investment program does not include any new projects. Tender documents for Vostochnaya TPP general contractor work includes provisions regarding EC Directive on Industrial Emissions. IED emission requirements are included in boiler supply section - this means that certain IED aspects (emission levels) will be introduced. Engineering solution development process includes requirements for gas turbines as was intended in 2012. |
| **4** | **Stakeholder Engagement and Community Consultation** | | | | | | |  |
| 4.1 | Develop and implement a corporate stakeholder engagement plan (SEP) a  Adoption and implementation of the SEP by ESV. | Improve corporate level engagement between subsidiaries and the public for major projects. | Voluntary and best practice. EBRD’s PR 10. | Consultants fees for development (minimal and covered (Mott MacDonald))  Own resources - budget allocation within ESV for ongoing implementation of engagement activities and training. | Ongoing from last quarter 2013 and for the duration of the loan | | SEP documented. Evidence of engagement programme implementation i.e. attendance logs, minutes of meetings etc. | Corporate SEP was developed and is available on the company’s website. Persons responsible for inquiry review in accordance with SEP were appointed. |
| **5** | **Labour and Working Conditions and Occupational Health and Safety** | | | | | | |  |
| 5.1 | Review investment priority projects compliance with labour and working conditions against the requirements of RF / ILO / EBRD PRs on a bi-annual (during construction) or annual (if operational) basis. The review must include a site visit to the project site to verify information.  Subsidiaries to undertake the same review and verification process for their contractors. | To ensure all subsidiaries (and contractors) are in compliance with national and international standards (i.e. those prescribed by EBRD and the ILO). | RF / EBRD’s PRs / ILO | Own resources - budget allocation for environmental, health and safety review of subsidiaries. | | Ongoing from last quarter 2013 for the duration of the loan. | Audit reports maintained as evidence of compliance with obligations. | Implementation for subcontractors is planned, responsibilities have been assigned |
| **6** | **Pollution Prevention and Abatement** | | | | | | | |
| 6.1 | For new gas fired units include a contractual requirement that emissions guarantees for purchase of ***new* generating** equipment (including boilers) is targeted to meet the requirements of EU Industrial Emissions Directive (IED) Annex V. For other thermal units aim to attain EU standards, based on assessments done in point 3.2 and 3.3 above.  The emission standards for existing units as part of plant modernisation (full boiler replacement/re-construction) should comply with the Emission Limit Values (ELVs) set out within the EU Large Combustion Plant Directive 2001/80/EC (LCPD) for dust and NOx, and National standards if more stringent. Dust standards of 50 mg/Nm3 will be met on all new and modernized (major capital repair) boilers.  SOx reduction will be based on as an as needed basis to meet National Standards and reduce environmental impact. A review will be made of the priority investments by 2016. | Ensuring unified compliance of ESV’s emissions with EU requirements. | EU | Own resources / possibly some minimal legal costs | Ongoing from first quarter 2013 and for the duration of the loan. | | Evidence of contractual obligations to be provided. | Tender documents for Vostochnaya TPP general contractor work includes provisions regarding EC Directive on Industrial  Emissions for boilers, including emission levels. Additional comments are also provided in the remarks to p.3.3 above. Currently, other new development projects controlled by JSC RAO ES of East are not being carried out, excluding switch of Vladivostok TPP-2 plants from coal to gas. |
| 6.2 | Complete full conversion of Vladivostok CHP-2 from coal fuel to natural gas fuel. | Improving environmental situation in the city | RF and EU | Own resources | 2015 | | Conversion completed | 10 plants were switched by the end of 2013 (the work will be continued at two plants). A decision was made to suspend the switch of 11 to 14 plants in 2014. Activities for provision of gas supply will be continued in 2015. |
| **7** | **Hazardous Materials** | | | | | | | |
| 7.1 | Develop and implement procedures and a training programme to ensure subsidiaries compliance on the use, management and disposal of materials listed as hazardous under the following EU Directives:   * Dangerous Substances Directive (76/464/EEC) * Council Directive 96/59/EC on the disposal of polychlorinated biphenyls and polychlorinated terphenyls (PCB/PCT) * Regulation (EC) No 842/2006 of the European Parliament and of the Council on certain fluorinated greenhouse gases * Regulation (EC) 1005/2009 (PDF 1.2 MB) on substances that deplete the ozone layer * Waste Framework Directive 2008/98/EC * 2009/148/EC on the protection of workers from the risks related to exposure to asbestos at work | Ensure compliance with EU Directives on the use, management, control and disposal of hazardous materials | EU and RF | Own resources – budget allocation required for training and monitoring of implementation of hazardous materials management - this may be internal or external costs *(to be confirmed by ESV)* | Ongoing from second quarter 2013 and for the duration of the loan | | Evidence of training procedures and training attendance logs.  Evidence of hazardous management plans and implementation at assets. | Training related to EC directives was held in may 2013 for 20 employees from JSC RAO ES of East, JSC FEGC,  JSC Sakhalinenergo, JSC Yakutskenergo. Personnel training plan for 2014 was developed |
| **8** | **Land Contamination** | | | | | | | |
| 8.1 | When purchasing or leasing sites for new developments include clause within purchasing of lease agreements that places liability for existing contamination on the polluter. | To ensure protection of ESV in the event of a claim against them for land contamination. | EU / International Best Practice | Legal costs | Clauses to be included from last quarter 2012 | | Evidence of respective contractual obligations within ESV’s standard contracts. | There are no new developments, which require land purchase or lease. |

Part 2. Gas Power Plant Environmental and Social Action Plan - ESV

| **No** | **Action** | **Risks Liability/ Benefits** | | **Legislative requirement/Best practice** | | **Investment Needs/Resources** | | **Timetable Action to be Completed by End of Year** | **Target and Evaluation Criteria For Successful Implementation** | **Comment** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **1** | **General** | | | | | | | | | |
| 1.1 | The Company will develop and implement and EHS management systems, which will be ISO 14001 and OHSAS 18001 complaint. | | Need for an EHS management | | EBRD and best practice | consultancy | Within 2 years of commissioning | | Attain certification to ISO 14001 and OHSAS 18001 | Works for management system implementation were started in the beginning of 2014 with the assistance of consulting company - Ecosertifika. |
| 1.2 | Develop standardized contractor environmental, social, health and safety clauses and include in all new contractor assignments. | | Guarantee a unified adoption of international / EU standards by ESV and its subsidiaries | | Russian Federation (RF) / EBRD’s Performance Requirements (PRs) / ILO | Own resources / possibly some minimal legal costs | Ongoing from last quarter 2012 and for the duration of the loan. | | Standard clauses adopted and in place in all new contractor assignments | Adopted in tender documents as the work within the general contractor’s scope, as described in 1.1 Part 1. |
| 1.3 | Apply for, receive, and comply with all permits and authorizations including sanitary protection zone size.  Report to EBRD on non compliance with permits and authorisations | | Mitigation Project Risks associated with not receiving and maintaining the necessary permits | | RF requirements  EBRD PR 1 | Own resources  Design Institute  Consultant Fees  Other external fees for supporting permit applications | Prior to action requiring permit / authorisation  State Expertise expected December 2012 | | Approval of Design Documentation by State Expertise  Timely receipt of permits  Report to EBRD on permit status and compliance | Construction is permitted, design documents for phase P (engineering solution development) were approved by the state expert review. |
| 1.4 | If the Design Institute recommends that a new steam pipeline must be built using a different route, undertake the necessary environmental and social impact assessment of the pipeline route to meet EBRD’s requirements. Assessment must include assessment and management plans for economic and involuntary resettlement (if applicable). | | Minimising and mitigating potential environmental and social risks associated with the construction of a new pipeline in a different route | | RF / EU / EBRD | Consultant / Design Institute Costs | TBC (if applicable) | | Provision of ESIA documentation for EBRD review.  Evidence of obtainment of necessary RF permits and authorisations for the development | Not applicable, design institute will define that these activities are not required |
| 1.5 | Conduct a post commissioning environmental and social audit and reporting findings to EBRD.  The scope will be agreed with EBRD, but will include noise and ambient air measurements, with the aim of confirming that the project assumptions have been met. | | Confirm compliance and highlight gaps to EBRD requirements | | EBRD, | Own resources, plus consultant. Budget 30 K EUR | Within a year of plant commissioning | | Report audit to EBRD. | Will be required later |
| 1.6 | Undertake a BAT Assessment of the plant 5 years from commissioning to identify any opportunities for further improvements. | | Continuous improvement programme | | EBRD, best practice | Own resources | 5 years from Commissioning | | Report to EBRD | Will be required later |
| **2** | **E&S Management, Monitoring, Reporting, Organisational Capacity and Training** | | | | | | | | | |
| 2.1 | Management and mitigation measures from the design documentation to be developed into stand alone environmental, social management plan (ESMP) for construction, operation and decommissioning of the Project. | Ensure environmental and social management measures prescribed within the design documentation are implemented | | Russian Federation (RF) | | Design Institute / external consultant | | From 2013, 2 On-going from the Project construction start and implemented during construction period. | Documented ESMP in place and evidence of monitoring activities undertaken during construction i.e. weekly site checks etc. | A separate plan was not developed because the existing project-related plan, as well as the General contractor obligations under the contract cover all environmental, occupational safety and waste handling issues. |
| 2.2 | Conduct quarterly inspections of construction site and contractors occupational health and safety (OHS) performance.  Report on performance to EBRD every six months during construction. Report frequency to be increased in the event of significant issues / incidents on site. | Ensure contractor adoption of RF / EU requirements for OHS | | RF  EBRD | | Budget required for monitoring of contractor compliance | | Throughout construction | Report available and submitted to EBRD. | The report for 2nd half-year period was submitted on 17 February 2014.  Inclusion of the OHS-related operating efficiency assessment in the scope of inspections is planned since the construction start. |
| 2.3 | Develop, submit to EBRD, and publish Environmental and Social annual report. The report to EBRD should provide the status of each ESAP item and information on Project compliance or exceendances with RF / EU emission limits. | Ensure compliance with RF / EBRD / EU requirements | | RF / EU / EBRD | | Own resources | | Reporting annually from start of construction | Report available and submitted to EBRD | Will be required later |
| 2.4 | Maintain formal grievance mechanism for employees and contractors and disseminate information about its uses to the workforce, in the language(s) of the workers. | Prevent employee or contractor disputes from grievances | | EBRD PR2. | | None – mechanism already in place. | | Prior to major construction activities | Development/adoption of workers grievance mechanism.  Report to EBRD on grievances and resolutions | To be checked during construction |
| **3** | **Stakeholder Engagement and Community Consultation** | | | | | | | | | |
| 3.1 | Develop and implement a Project stakeholder engagement plan (SEP)  Identify manager responsible for implementation of stakeholder engagement actions. | Improve public consultant and information disclosure for the Project. | | Voluntary and best practice. ERBD’s PR 10. | | Consultants fees for development (minimal and covered (Mott MacDonald))  Own resources - budget allocation within JSC DGC for ongoing implementation of engagement activities and training for owner of the SEP. | | Ongoing from 2013 and for the duration of the loan. | SEP documented. Evidence of engagement programme implementation i.e. attendance logs, minutes of meetings etc.  Report to EBRD on all grievances received and how addressed/ resolved | SEP publication. Public consultation (i.e. public hearing) were held in February 2013 (the event was annunciated, minutes were prepared, comments were collected, results were published in the form of press release). |
| **4** | **Pollution Prevention and Abatement** | | | | | | | | | |
| 4.1 | Include a contractual requirement that emissions guarantees for purchase of the turbines and boilers meet the requirements of EU IED and other relevant EU Directives.  This will include a NOx emission of 51 mg/Nm3 (below 24 ppm) from the gas turbines and installation of a continuous NOx emission system on each stack.  NOx emissions from the water boilers will be below 100 mg/Nm3. | Ensuring unified compliance of Project emissions with EU requirements. | | EU | | Own resources / possibly some minimal legal costs | | Ongoing from 2013 | Evidence of contractual obligations to be provided.  Emission data provided in annual report in mg/Nm3 | Tender documents contain NOx emission requirements for water boilers of less than 100 mg/m3 (normal conditions).  CEMS installation requirement for each pipe is included in the tender requirements for general contractor. |
| 4.2 | Provide evidence of compliance with Pospotrebnadzor’s requirements for assessment and remediating land contamination. | Ensure compliance with RF requirements. | | RF | | Own resources | | First quarter 2013 | Provide EBRD with compliance certificate issued by respective authority | There are no provisions for assessment and possible local land pollution elimination (previous information report) In accordance with the contract, contractor is obliged to observe sanitary requirements for landscaping prior to commissioning. |
| 4.3 | Monitor performance and records of contractors waste management practices during demolition and construction of the Project. Special attention should be given to contractor’s disposal of hazardous or contaminated wastes. | Ensure contractors comply with RF and EU requirements for waste management | | RF/ EU | | Own resources | | Monitoring and improvement requirements to begin immediately | Improvement within waste management evident on site. Compliance with Regulatory Authority waste notes. | Must be included in inspection check list later. |
| 4.4 | Undertake noise monitoring at sensitive receptors every quarter for a period of 24 hours each time. | To ensure operational compliance with permitted noise emissions | | RF | | No additional cost required – monitoring system and personnel in place | | Ongoing for the operation of the report | Report noise emission compliance to EBRD | Will be required later |
| 4.5 | Subject to the results of the assessment by an independent international consultant of the potential operational phase air quality impacts resulting from the NOx emissions from the Project using the dispersion modeling, the company will commit to developing and implementing a mitigating action plan including potential increase in the height of the boiler stack or lower NOx emissions from boilers. Such plan should be developed and agreed before 31 Dec 2012. | Project compliance with RF and EU requirements | | RF/EU | | Additional costs could be required | | 1st Q 2013 | Assessment completed and action plan agreed. Implementation schedule of the plan to be further defined. | In general, the actions specified above are reproduced in the boiler and CEMS requirements in p.4.1. |
| **5** | **Hazardous Materials** |  | |  | |  | |  |  |  |
| 5.1 | Undertake an asbestos survey of the buildings to be demolished and develop an asbestos management plan. All asbestos materials must be removed under controlled conditions by a licensed contractor and disposed of to a licensed hazardous waste facility. Asbestos removal contractors must be given and use personal protective equipment inline with a recognised EU standard e.g. British Standards (http://www.hse.gov.uk/pubns/guidance/em6.pdf). | Prevent contamination air, soils, workers and local community from asbestos fibres | | EU, ERBD | | Costs for employment of specialists contractors and asbestos disposal costs | | Immediately and ongoing through out decommissioning and construction | Evidence provided that specialist licensed asbestos contractors employed. Asbestos waste to be disposed off at hazardous waste facilities – evidence to be provided that this has occurred (waste disposal notes). | Asbestos-containing component research for Vostochnaya TPP project is included in the general contractor’s scope of work within the tender documents. |
| 5.2 | Monitor construction contractors and site operators’ use performance and records on the management of hazardous materials to ensure compliance with the following EU legislation:   * Dangerous Substances Directive (76/464/EEC) * Council Directive 96/59/EC on the disposal of polychlorinated biphenyls and polychlorinated terphenyls (PCB/PCT) * Regulation (EC) No 842/2006 of the European Parliament and of the Council on certain fluorinated greenhouse gases * Regulation (EC) 1005/2009 (PDF 1.2 MB) on substances that deplete the ozone layer * Waste Framework Directive 2008/98/EC * 2009/148/EC on the protection of workers from the risks related to exposure to asbestos at work   Provide funding and human resources for training on hazardous materials and the requirements of the Directives above. | Ensure compliance with EU Directives on the use, management, control and disposal of hazardous materials. | | EU , EBRD | | Own resources – budget allocation required for training and monitoring of implementation of hazardous materials management - this may be internal or external costs *(to be confirmed by JSC DGC)* | | Ongoing from Project construction start and for the duration of the loan. | Evidence of training procedures and training attendance logs.  Evidence of hazardous management plans and implementation at assets. | Must be included in inspection check list later. |

Additional action recommended to be considered for VCHPP project

| **No** | **Action** | **Description** | **Justification** | **Implementation plan** | **Resources** | **Monitoring indicators** |
| --- | --- | --- | --- | --- | --- | --- |
| **5** | **Projects connection – DRSK action** | | | | | |
| 1.1 | Develop clauses into ToR on design documentation for power output from VCHPP in respect to optimisation of the cable route. | Design ToR shall include the following:  Minimise potential compensation / temporary easement costs;  Avoid population and infrastructure disturbance:  Minimize river and road crossings. | EBRD PR3-5  Russian design and land acquisition requirements  Best practice | First priority action | Internal | Technical assignment with appropriate sections  Shall be covered in design documents |

## Appendix 1 Information about the Group’s companies