



European Investment Bank (EIB)

Luxembourg, 26.10.2020

Environmental and Social Completion Sheet (ESCS)

Overview

Project Name: REYKJAVIK ENERGY GEOTHERMAL
 Project Number: 2015-0480
 Country: ICELAND

Project Description: The project comprises extension works on two geothermal power plants outside Reykjavik and refurbishments of the district heating system and electricity distribution system in Reykjavik. The extensions at the Hellisheidi and Nesjavellir power plants are done to sustain production levels by drilling additional wells and to meet environmental requirements by increasing re-injection. The district heating investments comprise some 30 km of new and renewed piping, pumps and tanks. The electricity distribution investments comprise some 30 km of new or renewed underground cables, one new medium-voltage substation, additional transformer capacity and a new SCADA-system. New meters to comply with EU directives are also implemented in both heat and electricity distribution.

Summary of Environmental and Social Assessment at Completion

EIB notes the following key Environmental and Social outcomes at Project Completion.

The programme covered investments related to geothermal drilling and power production, power distribution and heat distribution.

If it were located in the EU, the components related to geothermal drilling and industrial installations for carrying hot water and steam would fall under Annex II of the EIA Directive 2011/92/EC as amended, thus implying a screening by the competent authorities determining whether an EIA Report is required or not. The Hellisheidi and the Nesjavellir geothermal power plants have originally been subject to a full EIA procedure in accordance with national legislation (Icelandic EIA Act no. 106/2000) in 2005 and 2000 respectively. Of the activities in the project scope, the drilling of make-up wells at both sites and the re-injection of geothermal fluids at Hellisheidi were covered by the original EIA.

The other activities part of the Project, the re-injection of geothermal fluids at Nesjavellir, the H₂S abatement unit at Hellisheidi and the 5.5 km-long steel pipeline from the geothermal field in Hveralid to Hellisheidi were not part of the original EIAs and were subject to a screening. These components were individually screened out by the competent authority, as they were not likely to have significant impact on environment and full EIAs were not required. The corresponding decisions were issued in 2014 and 2015.

The rest of the components of the programme were not subject to the EIA Directive due to their technical characteristics, size and as their environmental impact was deemed limited.

The operation provided environmental benefits in all three categories of works in the scope:

- The replacement of pipes with asbestos in sections of the district heating network;
- The installation of underground power cables to replace overhead cables;
- The increase of separated condensate water re-injection capacity in both Hellisheidi and Nesjavellir field, including the successful expansion of the Carbfix/Sulfix pilot gas separation station consisting of the reinjection of CO₂ and H₂S underground.



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As a result of the project, re-injection levels increased by 43% and the re-injection to production ratio improved from ca. 50% to 70%. In addition, the H₂S/CO₂ reinjection CarbFix/SulFix pilot resulted in emissions savings of 74% for H₂S and 33% for CO₂ in 2018. H₂S emissions are now systematically lower than the national H₂S regulatory health limits 600 m away from the power plant. Occurrences of H₂S concentration above the statutory limits at the power plant also significantly decreased, by ca. 90% in frequency.

No relevant environmental or social related risks were identified at time of appraisal. The environmental capacity of the promoter was reviewed by the services and was considered strong.

According to EIB GHG footprint calculations at completion, the programme would result in 4.4 kton CO₂e/year emissions in a standard year of operation and would contribute to the savings of -3 kton CO₂e/year, mostly in line with estimates at project appraisal, with some slight additional improvement accounting for the successful application of the CarbFix technology.

Based on the information provided by the promoter at project completion, no significant environment or social issues were noted.

Summary opinion of Environmental and Social aspects at completion:

EIB is of the opinion based on reports from the promoter and site visits by the EIB team during Construction that the Project has been implemented in line with EIB Environmental and Social Standards, applicable at the time of appraisal.