



Probable long term hydrological change of the Karahnjukar Hydro project in NE-Iceland

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The 630 MW Karahnjukar Hydro Power Project in the NE highlands of Iceland will start producing electricity in 2007. Research is ongoing regarding factors that will affect the long term storage capacity and electricity output of the project. These factors include: Sediment load, glacier melting/glacier area, annual flow variation, total annual discharge, changes in precipitation and elevation change of the southern water divide, etc. Based on climate warming models the present estimate for glacier melting in Iceland assumes that in 200-400 years the Vatnajokull ice cap will have almost disappeared. At present, most of the water flows into the reservoir during the 3-4 summer months glacier melting period. With increasing climate warming and decreasing glacier area the glacier melt water will first increase during the receding phase and then probably decrease, but more of the precipitation will fall as rain, instead of snow, in the autumn and spring months. Also the disappearance of the Vatnajokull ice cap will cause lowering of the southern water divide of the Karahnjukar watershed thus allowing more precipitation to enter the area, falling as rain due to the warmer climate. This will change the annual flow variation, from the present summer melt water peak period to a more evenly spread flow over 8-9 months with individual rainstorm peaks, requiring less storage volume than at present.