

Interactive comment on “Planning for climate change impacts on hydropower in the Far North” by J. E. Cherry et al.

Anonymous Referee #2

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Comment 1: It is imperative that planners and decision-makers have access to information on uncertainty in not only flows but also in sediment loads so these can be accounted for in the design of new hydropower projects. Change in climate can influence erosion and catchment sediment yield. This change in sediment yield can affect the reservoir storage volume and power production. If this is relevant to the Far North then, I think author should develop some paragraph on this aspect too.

Comment 2: In general there are three major sources of uncertainty related to climate change predictions: (1) due to GCM, emission scenarios and the down-scaling method used (2) uncertainty in land use change which is mostly neglected but should be included and (3) uncertainty due to hydrological modeling. These sources of uncertainties make hydrological predictions challenging. Nevertheless quantifying the uncertainty at every step in the modelling process (cascading uncertainty) can address

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the challenge in quantitative assessment of climate change impacts on catchment hydrology considering the full range of uncertainties involved. Hence what is needed is a careful investigation of sources of uncertainty through cascading and then identification of the major source(s) of uncertainty and focus on reducing that major source(s) of uncertainty. There are recent studies which have pointed out that major source of uncertainty can vary with time and is space dependent. Some discussion on these points could strengthen more Section 3.3 Estimating and reducing uncertainty.

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